

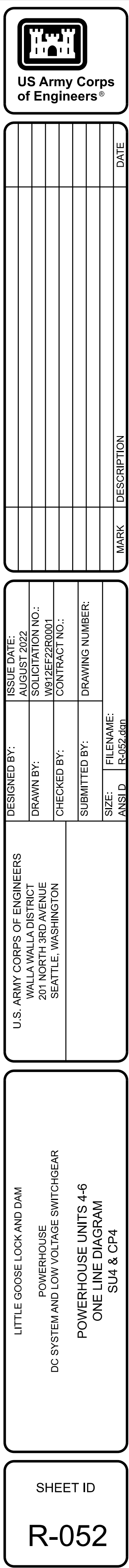
[illegible]

U.S. ARMY CORPS OF ENGINEERS WALLA WALLA DISTRICT 201 NORTH 9th AVENUE SEATTLE, WASHINGTON	DESIGNED BY:	AUGUST 2022
	DRAWN BY:	SOLICITATION NO.: W912EF22R0001
	CHECKED BY:	CONTRACT NO.:
	SUBMITTED BY:	DRAWING NUMBER:
	SIZE:	FILENAME: ANSI D R-051.dgn

POWERHOUSE
ONE LINE DIAGRAM
SU3 & CP3

SHEET ID

R-051



[illegible]

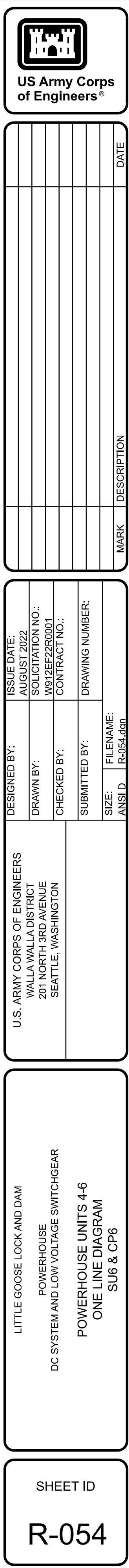
U.S. ARMY CORPS OF ENGINEERS WALLA WALLA DISTRICT 201 NORTH 3RD AVENUE SEATTLE, WASHINGTON	DESIGNED BY:	AUGUST 2022
	DRAWN BY:	SOLICITATION NO.: W912EF22R0001
	CHECKED BY:	CONTRACT NO.:
	SUBMITTED BY:	DRAWING NUMBER:
	SIZE:	FILENAME: ANSI D R-053.dgn

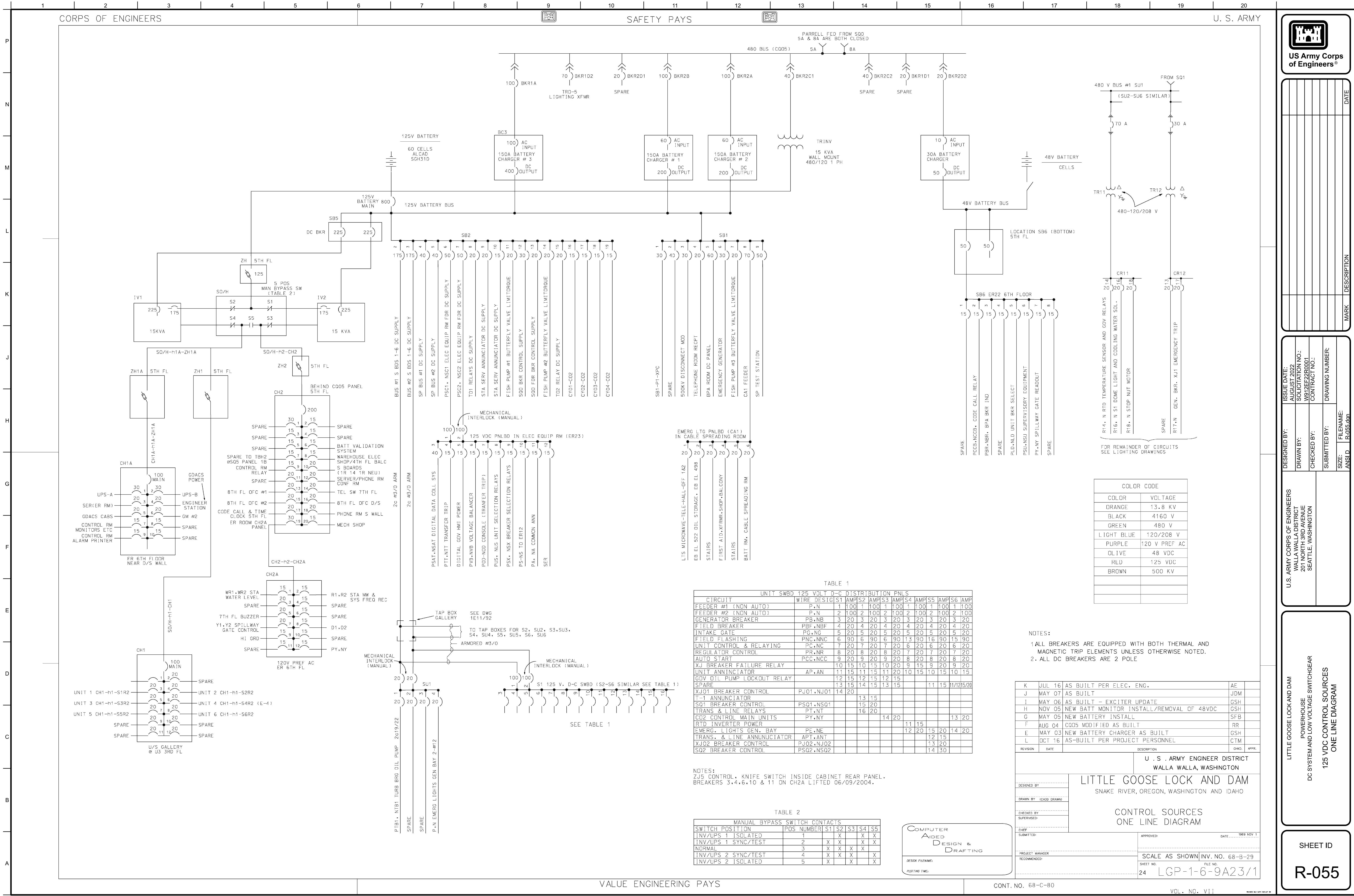
LITTLE GOOSE LOCK AND DAM
POWERHOUSE
DC SYSTEM AND LOW VOLTAGE SWITCHGEAR

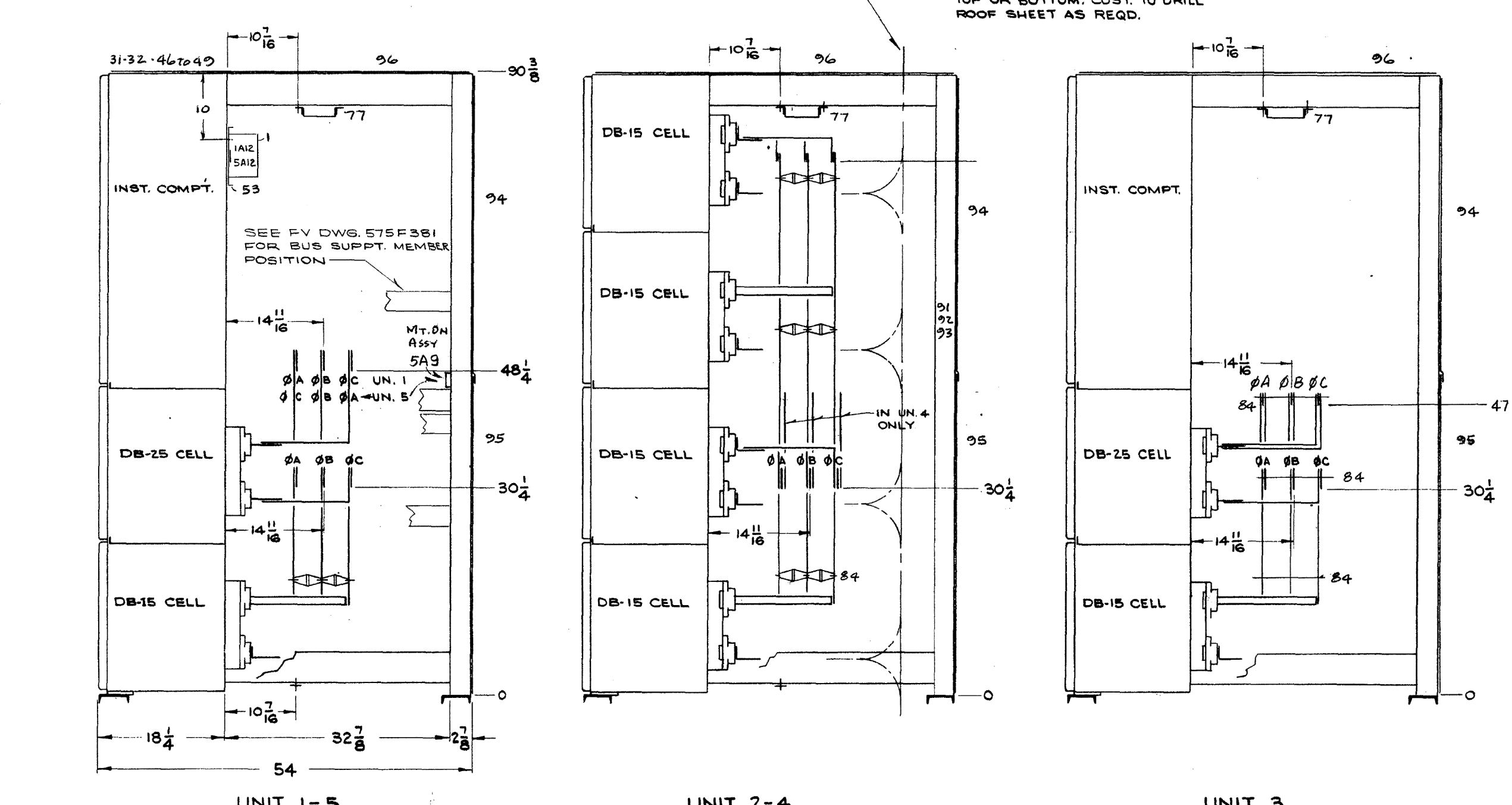
POWERHOUSE UNITS 4-6
ONE LINE DIAGRAM
SU5 & CP5

SHEET ID

R-053





[illegible]

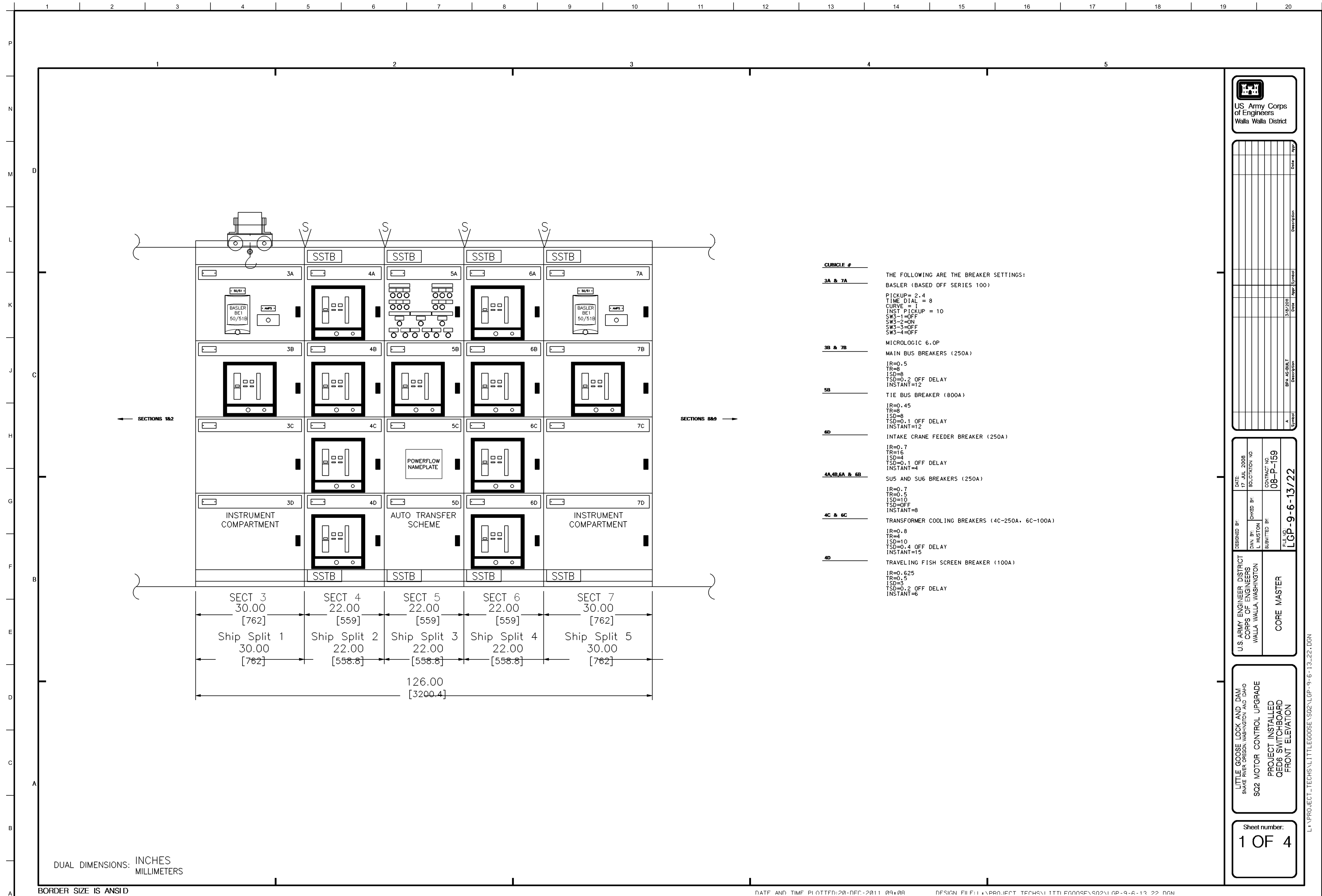
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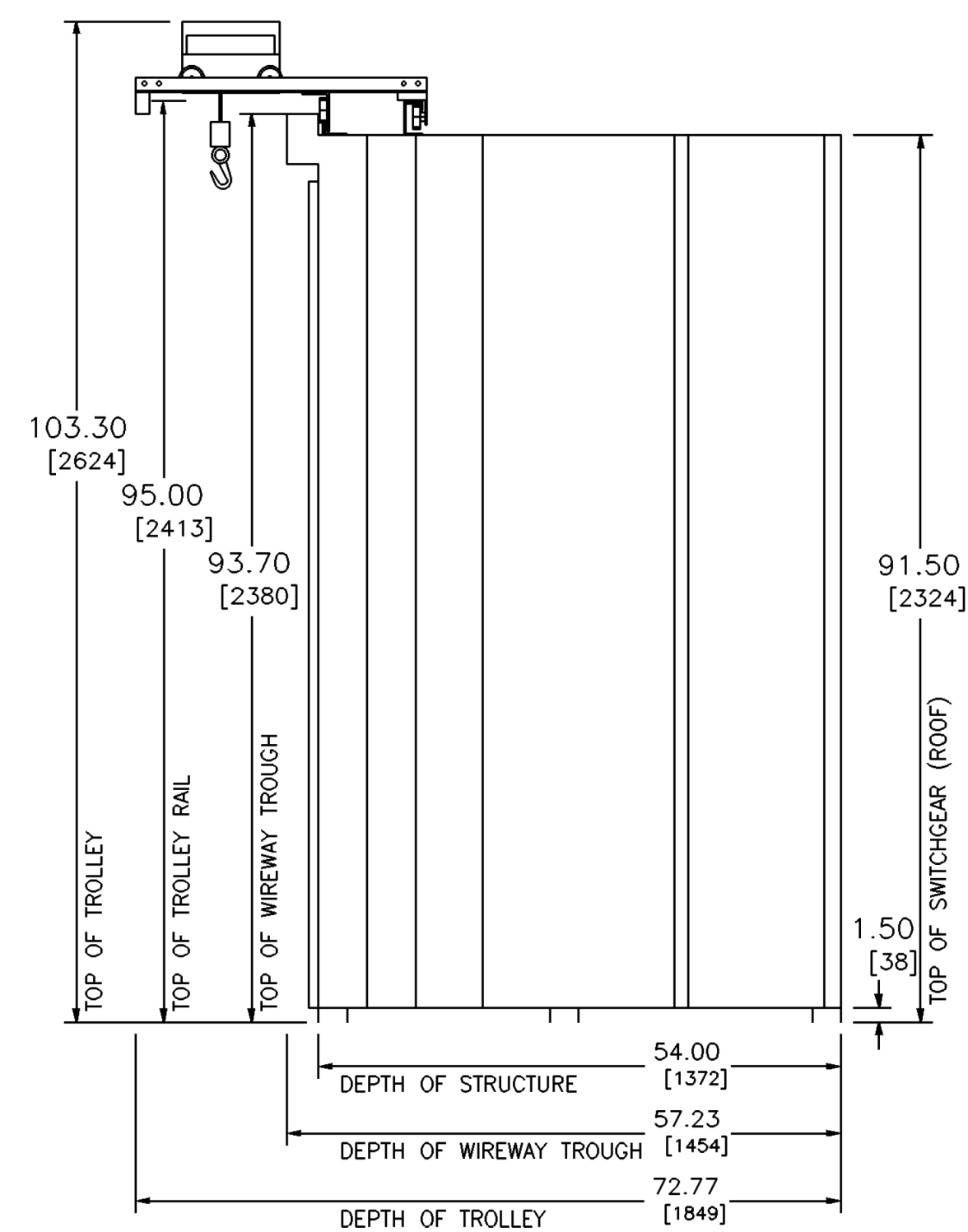
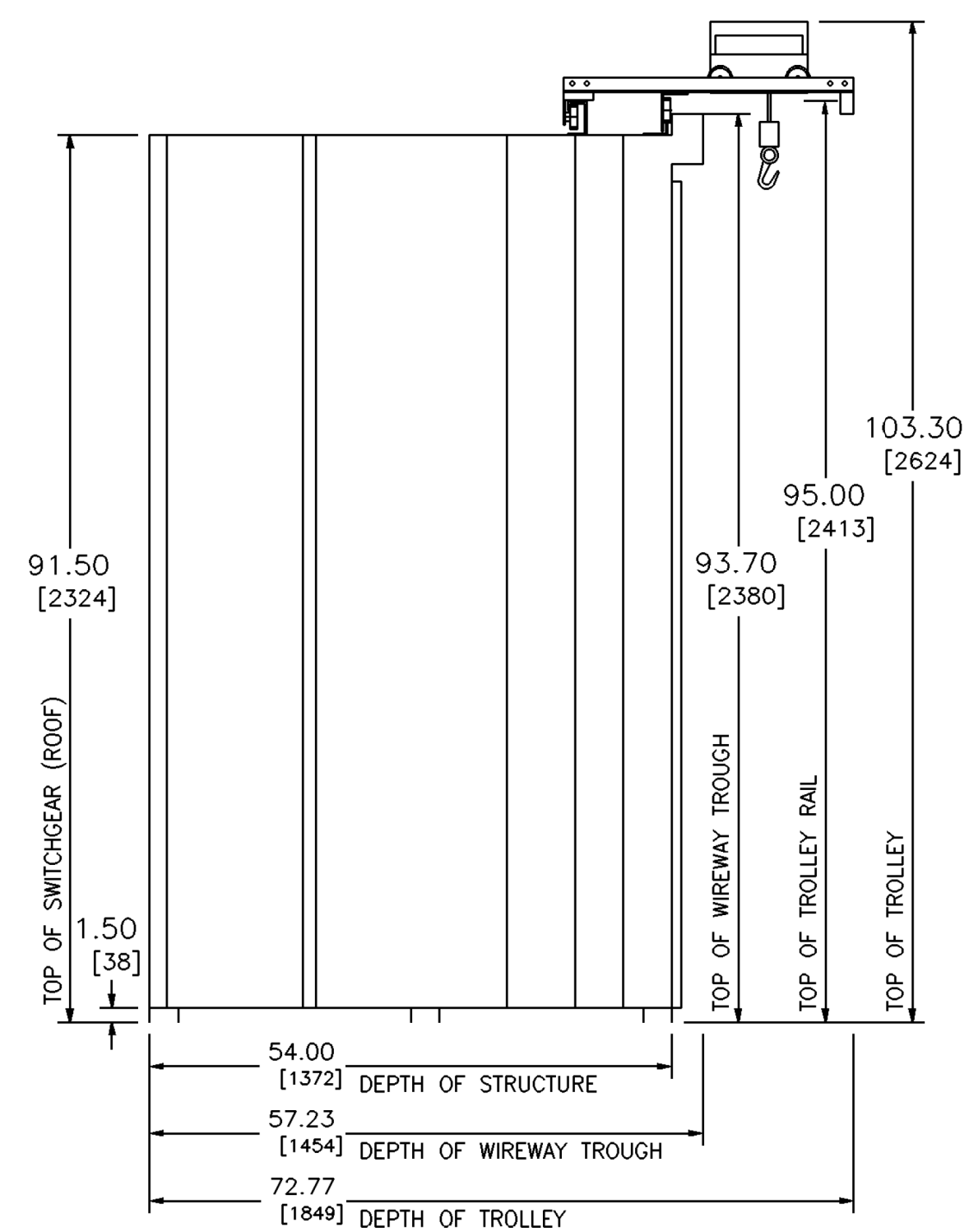
A. M. M. M.

16 July 71

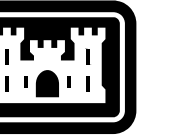
APPROVED
FOR CONSTRUCTION
CORPS OF ENGINEERS, U. S. ARMY
NORTH PACIFIC DIVISION
DATE: 1 NOV 1981
BY: *[Signature]*
HINDS ELECTRIC COMPANY (A DIVISION OF)
10000 10TH AVENUE, NORTH
IRVING, TEXAS 75039

U.S. ARMY ENGINEERS SCHEDULE "C"					
LITTLE GOOSE LOCK AND DAM SUBSTATION SQ1					
WESTINGHOUSE ELECTRIC CORPORATION					
TITLE INDOOR L.V.M.E. SWGR. 480 V 3Ø 60~ 3 POS.					
DIMENSIONS IN INCHES—SCALE NTS				SECT VIEWS & NP DATA	
DPTH	<i>Handl 4' x 6'</i>	APPD.	<i>W. J. Wainier</i>	<i>W.H.</i>	
CHKD.		APPD.		575F382	
SUPV.		APPD.	<i>Wm de la Cruz</i>		
DIV. & PLANT LOCATION <i>SWGR</i>				E.P.G.H.—PA, USA G6000	





ROBBERED CITE IS AMERICAN



**U.S. Army Corps
Engineers®**

[illegible]

201 NORTH 3RD AVENUE SEATTLE, WASHINGTON	DRAWN BY:		CONTRACT NO.:	W912EF22R0001	SOLICITATION NO:
	CHECKED BY:				
	SUBMITTED BY:		DRAWING NUMBER:		
	SIZE:	FILENAME:			
	ANSI D	R0558.dgn			

POWERHOUSE
DC SYSTEM AND LOW VOLTAGE SWITCHGEAR
PROJECT INSTALLED
QED6 SWITCHBOARD
SIDE VIEW

SHEET ID
R-058

[illegible]

U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS WALLA WALLA, WASHINGTON	DESIGNED BY:	DATE:
	DRAWN BY:	17 JUL. 2008
	CHECKED BY:	SOC. CITATION NO.
	L. HUSTON	
CORE MASTER	SUBMITTED BY:	CONTRACT NO.
		08-P-159
	FILE NO.	
LGP-9-6-13/24		


LITTLE GOOSE LOCK AND DAM
SNAKE RIVER, OREGON, WASHINGTON AND IDAHO

SQ2 MOTOR CONTROL UPGRADE

PROJECT INSTALLED
QED6 SWITCHBOARD
SIDE VIEW

Sheet number:
3 OF 4

DESIGNED BY:	CHKD BY:	SOLICITATION NO.	DATE: 17 JUL 2008
DWN BY: L HUSTON	SUBMITTED BY:	CONTRACT NO. 08-P-159	
FILE NO: LGP-9-6-13/24			

[illegible]

US Army Corps
of Engineers
Walla Walla District

C:\PROJECTS\TECHS\CT1\EE0005E\302\302\F-3-8-13-24.D00N

1. Ensure proper breaker is open
2. Depress the locking button on the bottom left of the breaker, and remove the ratcheting handle from the bottom right of the breaker.
3. Depress and hold in the press to open button and insert the ratcheting handle.
4. Crank counter clockwise until the locking button pops out (this is the testing position)
5. Without removing ratchet handle depress the button on the bottom left again and continue cranking.
6. The next time the button pops out the breaker is fully racked out.
7. Replace the ratchet handle.

Certified Test Report

REGION FILE: \DDB\EST\TRUCK\ITR\5000051.DDB:00 0 0 10 05 00

L:\PROJECT_TECHS\LITTLEGOOSE\SQ2\LGP-9-6-13-25.DCN



In accordance with drawing LGP-1.9-6-1A0// as indicated below:

- | | |
|-------|--|
| (A) | Ammeter |
| (AT) | Current transducer |
| (W) | Wattmeter |
| (WH) | Watt-hour meter |
| (50N) | Instantaneous overcurrent ground relay |
| (5I) | Overcurrent relay |
| (5IN) | Time overcurrent ground relay |
| (EA) | Tap changer operating mechanism |
| (67) | Differential overcurrent relay |
| (90T) | Tap changer voltage regulating device |
| (3CC) | Located on console in Control Room |
| (V) | Voltmeter |
| (VS) | Voltmeter switch |
| (AS) | Ammeter switch |
| (TB) | Test block |
| (F) | Frequency Meter |

NOTES

1. On loss of normal station power, breakers XP11, XP12, XP13 and XP14 will be tripped and breaker XP21 will close after Emergency Generator voltage is established.
2. Government-furnished cable to be installed in this contract as noted.
3. Breakers XP14, XP15 & XP16 and associated relays and CT's shall be furnished and installed as specified in this contract.

AS CONSTRUCTED

HYDRO ELECTRIC DESIGN BRANCH, NPD

SEP 30 1980

DATE 11/11/2011 BY Rachel E. Moore

<u>A</u>	<u>30 SEP 90</u>	<u>As Constructed</u>			<u>RCM</u>
REVISION	DATE		DESCRIPTION		BY
<p align="center">CORPS OF ENGINEERS, U. S. ARMY NORTH PLATINUM DIVISION, PORTLAND, OREGON</p>					
DESIGNED BY: <u>RCM</u>		<p align="center">LITTLE GOOSE LOCK AND DAM Snake River, Oregon, Washington, & Idaho POWERHOUSE UNITS 4-6 ONE LINE DIAGRAM STATION SERVICE</p>			
DRAWN BY: <u>Cont</u>					
CHECKED BY: <u>EMS</u>					
PREPARED BY: <u>John R. Wiley</u> AND ELECTRICAL SECTION					
SUBMITTED: <u>John O. Dwyer</u> CHIEF, HYDRO-ELECTRIC DESIGN BRANCH		APPROVED: FOR DIV. ENGINEER <u>John O. Dwyer</u> CHIEF, ENGINEERING DIVISION		DATE: <u>1975 MAR 9 T</u>	
		SCALE AS SHOWN		SPEC. NO. <u>73-B-55</u>	
		SHEET <u>191</u> LGP-1.9-6-1A21/I			

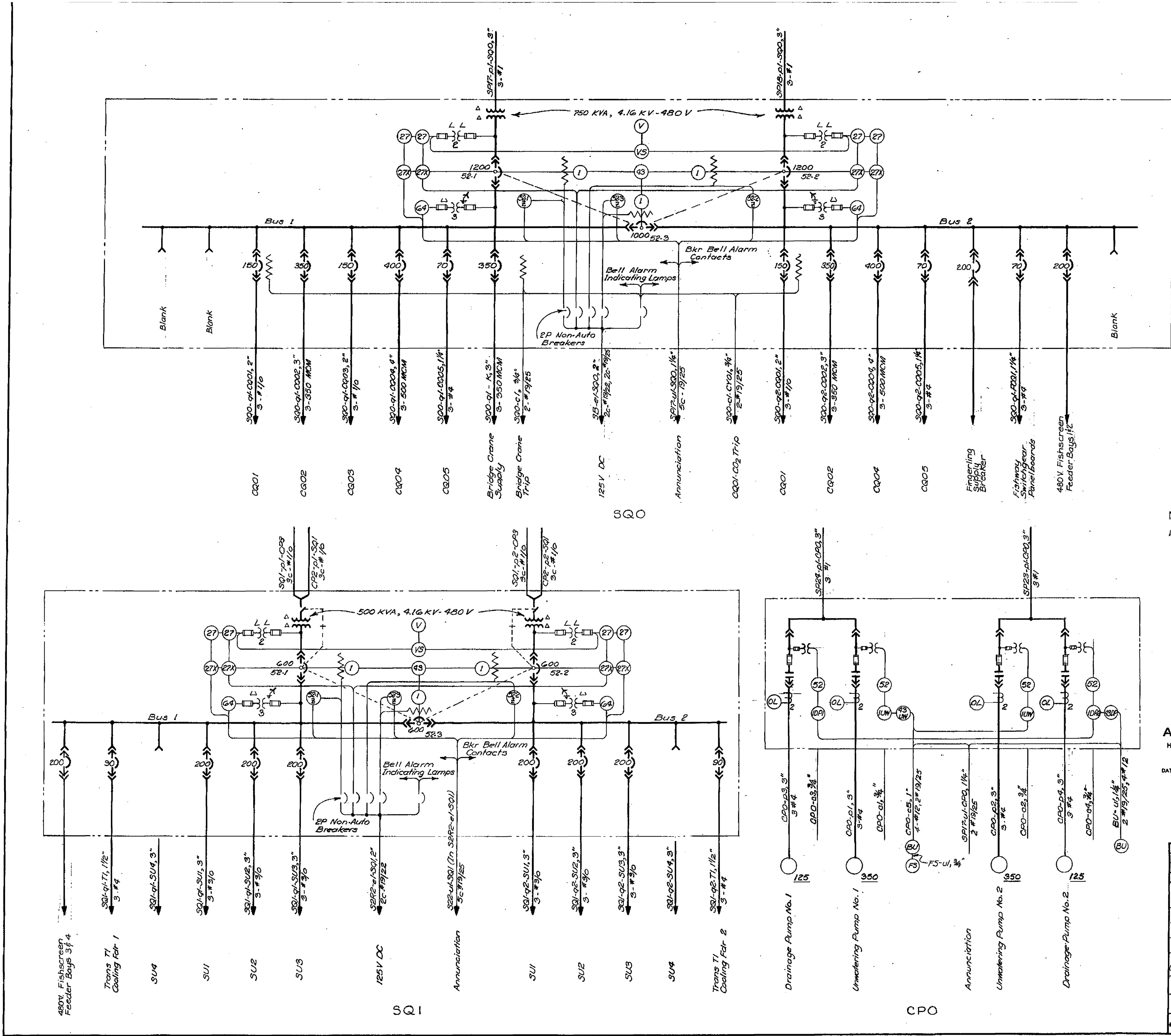
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U.S. ARMY CORPS OF ENGINEERS 1 A WILLOW CREEK DRIVE 201 NORTH 3RD AVENUE SEATTLE, WASHINGTON	DESIGNED BY:	ISSUE DATE: AUGUST 2022
	DRAWN BY:	SOLICITATION NO.: W59-2022-0001
	CHECKED BY:	CONTRACT NO.:
	SUBMITTED BY:	DRAWING NUMBER:
	SIZE: ANSI D	FILENAME: R360.dgn

LITTLE GOOSE LOCK AND DAM
POWERHOUSE
DC SYSTEM AND LOW VOLTAGE SWITCHGEAR
POWERHOUSE UNITS 4-6
ONE LINE DIAGRAM
STATION SERVICE

SHEET ID

R-060



NOTE
1. For General Notes and Legend see Dwg L6P-I.I-6-1A0/1.

AS CONSTRUCTED
HYDRO ELECTRIC DESIGN BRANCH, NPD
DATE 1871 SEP 7 BY J.R. J.

DESIGNED BY: EMS	DRWN BY: DFR	CHECKED BY: DES	PREPARED BY: [Signature]	SUBMITTED BY: [Signature]	DATE: 25 Jan 68
U. S. ARMY ENGINEER DIVISION, N. P. PORTLAND, OREGON					
LITTLE GOOSE LOCK AND DAM SNAKE RIVER, OREGON, WASHINGTON, & IDAHO POWERHOUSE ONE LINE DIAGRAM SQO, SQI & CPO					
SCALE AS SHOWN				SPEC. NO.	
SHEET 18				LGP-I.I-6-1D21/1	

FOR INFORMATION ONLY

US Army Corps of Engineers

ISSUE DATE:	MARK	DESCRIPTION	DATE
AUGUST 1962			
SOLICITATION NO:			
W91ZCZ0001			
CONTRACT NO:			
DESIGNED BY:			
DRAWN BY:			
CHECKED BY:			
SUBMITTED BY:			
FILE NAME:			
SIZE:			
ANSI D:			

U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
201 NORTH 3RD AVENUE
SEATTLE, WASHINGTON

LITTLE GOOSE LOCK AND DAM
POWERHOUSE
DC SYSTEM AND LOW VOLTAGE SWITCHGEAR
POWERHOUSE UNITS 4-6
ONE LINE DIAGRAM
SQO, SQI, & CPO

SHEET ID
R-061

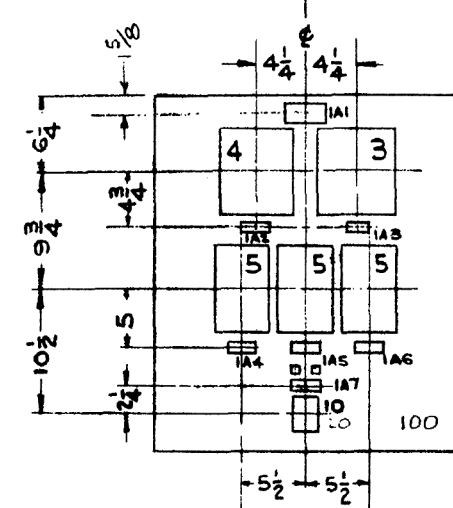
FINAL

COPPER BUS & RISERS			
	SYM	SIZE	
NOTE A	A	1/4 X 6	I 1/4 X 1/4
	B	1/4 X 5	J 1/4 X 1
	C	1/4 X 4	
	D	1/4 X 3	
	E	1/4 X 2 1/2	
	F	1/4 X 2	
	G	1/4 X 1 3/4	
	H	1/4 X 1 1/2	

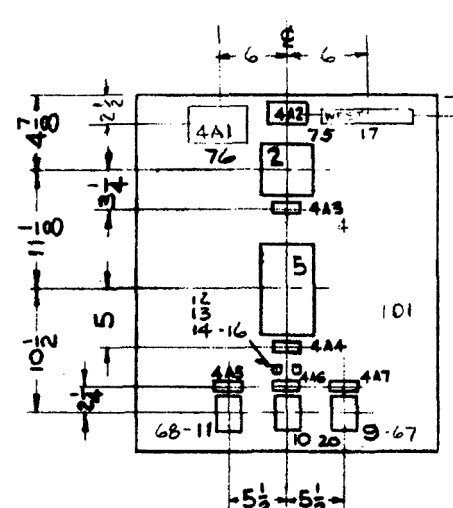
NOTE A - NUMERICAL SUFFIX ADDED TO BUS SYMBOL LETTER INDICATES NO. OF BUS PER PHASE.

DRILLING PLAN REF CHART		
B OF M	ITEM NO.	DRILLING PLAN
2		288A844
3		288A977
4		288A977
5		288A965
9-11		289A974
10		289A978 FIG 1
		289A978 FIG 2
17-18		MT. AT ASSEM.
1		301A666
7		77-B-3595 FIG.13
8 3P		669D805 "13
8 2P		669D805 "3
8 1P		SFD700 GR. 3

CELL	B/M ITEM	BKR TYPE	BKR TRIP	LUG/PH	LUG IT NO.
1B	21	DB-50	1200A	-	
2A	24	DB-25	150A	(1) 1/0	35
2B	28		350A	(1) 350MCM	37
2C	27		150A	(1) 1/0	35
2D	25		400A	(1) 500MCM	38
3A	30		70A	(1) #4	33
3B	23		350A	(1) 350MCM	37
3C			(FUT)		
3D			(FUT)		
4B	22	DB-50	1000A		
5A	24	DB-25	150A	(1) 1/0	35
5B	28		350A	(1) 350MCM	37
5C	26		200A	(1) 3/0	36
5D	25		400A	(1) 500MCM	38
6A	30		70A	(1) #4	33
6B			(FUT)		
6C			(FUT)		
6D	30		70A	(1) #4	33
7B	21	DB-50	1200A		



INSTRUMENT PANEL
1A



INSTRUMENT PANEL

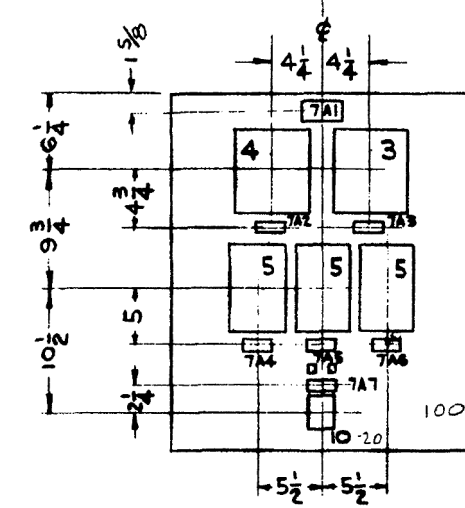
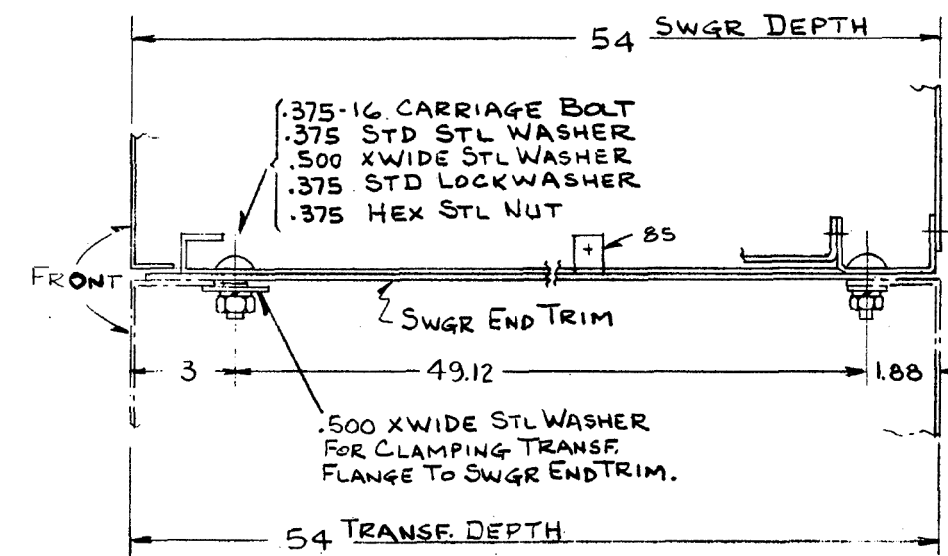
INSTRUMENT PANEL
7A

FIG. 1

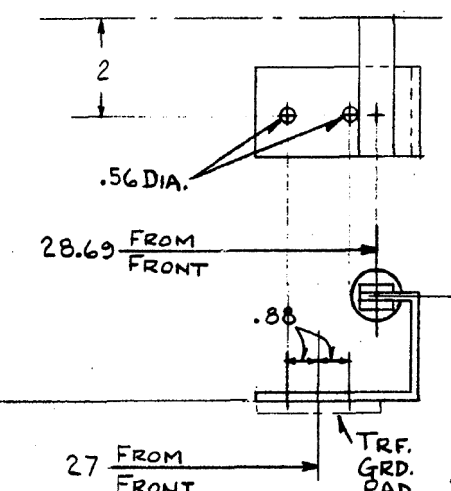
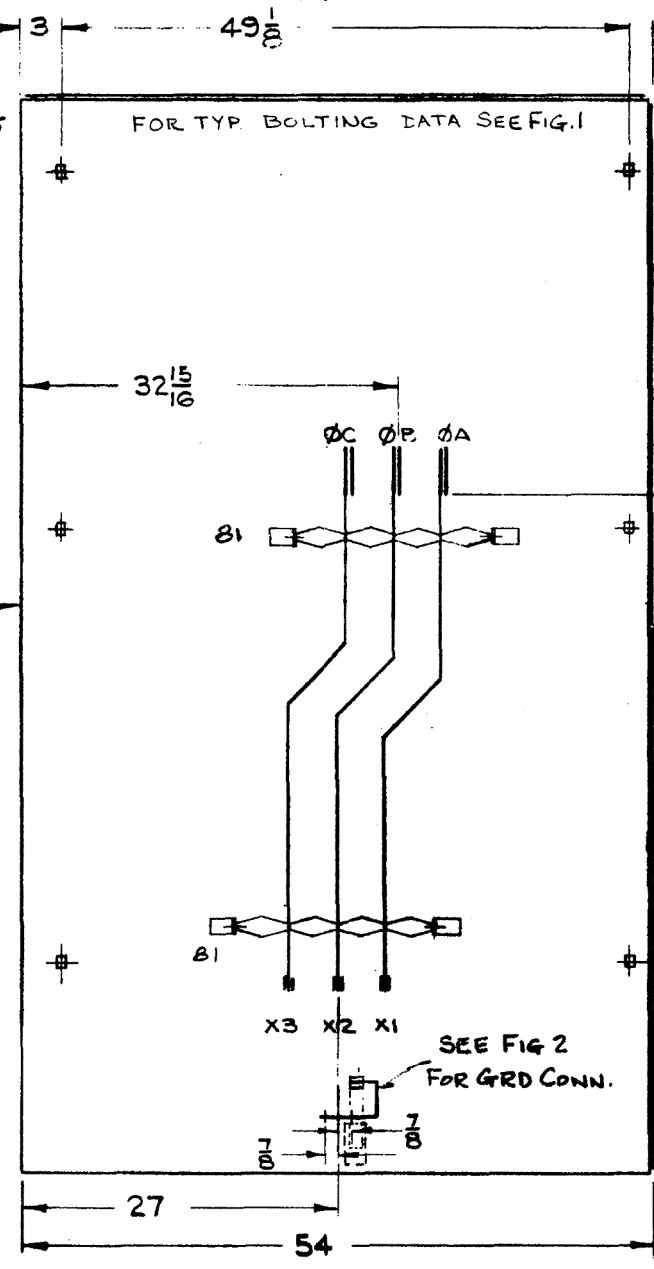


FIG. 2



FRONT

APPARATUS LVME SWGR (INDOOR)

B/M

DWG. 515 E 378

SUB # 23

FINISH CHART

X S I T	Z I T	DESCRIPTION - MATERIAL DIM. IN INCHES	PAT. NO. OR REF. DWG.	FIN. CH. LIB. NO.	STYLE NO.	SYN. GR.									
						1	2	3	4	5					
T	67	FACE PLATE (USE WITH IT.9)			502A054H01	1									
	68	↓ (USE WITH IT.11)			502A054H01	1									
	69	INDT ASSY (AMBER)			682C587G01	19									
	70	GRD CONT.			301C729H06	16									DB-25
	71	GRD. CONT.			301C800H12	3									DB-50
	72	SEC. CONT. S/P.L.T. - MOUNT TOP L.H.F.V.			183B1225 G11	3									CELL MT. 1/4" B-8
	73	N.P. (CLV)			100P376H01	12									
	74	N.P. (1X2.5)			11S11774	34									
	75	N.P. (12X3.5)			11S11773	22									
	76	N.P. (3X5)			436A008H04	2									
	77	EMPL TRF. MTG			663AC24H01	2									
	78	BUS S/PT			676C105G01	4									
	79	END TRIM 1T.1, 676C200				2									
	80	INTERM BARR			682C587G02	2									
M	81	RISER S/PT			304C229G01	2									
	82	WIRE TROUGH			682C587G04	3									26
	83	WIRE TROUGH			682C587G03	4									18
	84	POST INSUL			229A989G01	4									3.75
	85	END TRIM MTG CLIP			1332841	2									
	86	GRD RISER 450" OF .25X1.5 C.BAR 13404BG				1									
N	87	1650" OF .25X3				1									
N	88	200" OF .25X2 1/2 C.BAR 13404BG				1									
N	89	1700" OF .25X1.5				1									
N	90	22" OF .25X1				1									
	91	T. BLK 12 P.T.			805456	2									
	92	P & N BLK			1809599	1									
	93	P & N MTG			5038063H01	2									
	94	TOP TRIM 1T 23, 9B1522				3									DB-50
	95	RR TRIM TOP 1T 7, 2B1522				3									DB-50
	96	RR TRIM B 1T 8, 9B1522				3									DB-50
	97	RR TRIM T 1T 22, 9B1522				4									DB-25
	98	RR TRIM B 1T 23, 9B1522				4									DB-25
	99	TOP TRIM 1T 41, 9B1523				4									DB-25
P	100	INST PNL (19B9145G05)				R									1A-74
P	101	INST PNL (19B9145G05)				R									4A
	102	BKR DOOR				16									DB-25
	103	BKR DOOR				3									DB-50
	104	RES. MTG			644A40IG05	2									
	105	RES. MTG ADAPTER			644A40IH05	2									
H	106	SHPS & LFTR RAIL 'A' = 44" WIDHTS LTO R 26-18			308C201H01	2									1-2
H	107	↓ 'A' = 36" WIDHTS LTO R 18-18			308C201H01	2									5-6
	108	TIE PIECE			300C289H06	1									
	109	CLAMP			404B268H06	14									
	110	SPREADER			308C201H08	4									
H	111	SHPS & LFTR RAIL 'A' = 44" WIDHTS LTO R 18-26			308C201H01	2									3-4
H	112	SHPS & LFTR RAIL 'A' = 26" WIDHTS LTO R 18-26			308C201H01	2									7

APPARATUS

LVMVE SWGR (INDOOR)

B/M

DWS 515F378

SUB 113

FINISH CHART

SYN	ITEM	DESCRIPTION - MATERIAL DIM. IN INCHES	PAT. NO. REF. DWS.	FIN. CH. LINE NO.	STYLE NO.	SYM				
						GR	1	2	3	4
N	1	EMPL PT 48Q/120V			254A461G	4	10			70027
N	2	KA-241 VM 0-600V			2918462A09	1				
N	3	CV-B REL 193V			18755527	2				
N	4	CV-7 REL 55-140V				2				
N	5	MG-6 REL 125V D.C.			289B360M01	7				
N	6	RES. FOR GRD REL 500A			502A008H13	4				
N	7	FUSE CLV 600V 2A			477C 593G01	12	3			
N	8	FUSE NEC 250V GA			120A823M03	6	3			
N	9	W-2 VM SW			505A705602	1				
N	10	W-2 CONT SW			505A713604	3				
N	11	W-2 TRANSFER SW			505A781901	1				
N	12	LAMP RECP. 125 DC			158B184	6				
N	13	LENS RED			16156B8	3				
N	14	LENS GREEN			16156B8	3				
N	15	LENS AMBER			1815692	2				
N	16	BULB T-2			1124156	6	3			
N	17	DRESS NP 1/8 X 8			501TC409M01	1				
N	18	AB BKR NON AUTO	6AT 12	E2100N						
N	19	RESISTOR 375 OHMS (500A)			502A005H3	5				
N	20	HEAVY DUTY HANDLE			877C101H01	3				
N	21	DB-50 ACB EO 1200A CODE A			24Y3847B	2				70000
N	22	DB-50 ACB EO 1000A				B1				70001
N	23	DB-25 MO 350A C				B2				70012
N	24	150A D				B3				70013
N	25	400A E				B4				70002
N	26	200A F				B5				70007
N	27	150A G				B6				70008
N	28	350A Y				B7				70003
N	29									
N	30			TOA		J				
N	31						B8			70009
N	32									
N	33	CABLE LUG #8 - #4 BUENNY QA4CB					9			
N	34	LVMVE 'A' SPEC.					R			
N	35	CABLE LUG 1/0-2/0 QA2EB					11			
N	36	3/0-4/0 QA28-2N					12			
N	37	250-350MCM QA31-2N					6			
N	38	400-500MCM QA34-2N					9			
N	39	DOOR SCREEN			679C083H01	6				DB-50
N	40	↓			679C083H02	32				DB-25
N	41	RR TRIM SCREEN			679C083H04	6				18
N	42	↓			679C083H05	6				26
N	43	DB-50 LEV DEVICE			1815470		1			
N	44	DB-50 EXT. RAIL L.H.			301C797G01		1			
N	45	DB-50 EXT. RAIL R.H.			301C797G02		1			
N	46	DB-50 MAINT. CLOSING HANDLE			302C426602		1			

NOTES

- A - WIRE PER FIG. 1 DWG. 575F423
B - SELECTIVE TRIPS PER CURVE 388630
C - " " 388630
D - WIRE PER FIG. 2 DWG. 575F423
E - TRIPS PER CURVE 405123 (BKR. MANUAL SPRING CLOSE)
F - WIRE PER FIG. 2 DWG. 575F423
G - TYP - ALL BKR. PANELS SUPPLIED WITH AMBER LIGHT.
H - CONT. ASSEMBLY PER DWG. 508C300
I - SIMILAR TO 57B15524 EXCEPT ICS IN UV CIRCUIT
J - FOR DEVELOPMENT SEE DWG. 575F423
K - USE ON ITEM 10
L - BULB EXTRACTOR NOT REQD.
M - MOUNT ON ASSY.
N - 2 BA 300'S
O - ORDERED BY ENG.
P - 57B5F378
Q - EXC. DMPL. PLATE.
R - SHIP DETAIL.
S - LTR. PLATE VOLTMETR PER POS. 15, OF CAPN1112, I, S, 6, 7, 1, A, B, 5, 2, 1
T - 10, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769,

CUST. ORDER # DA-45-164-CIVENG-65-148

APPROVED
FOR CONSTRUCTION

AS BUILT
A. McLean 16 July 71

US ARMY ENGINEERS SCHEDULE 'C'
LITTLE GOOSE LOCK & DAM
SUBSTATION SQO

WESTINGHOUSE ELECTRIC CORPORATION

TITLE INDOOR LOW VOLTAGE METAL ENCLOSED
SWITCHGEAR 480V 3 ϕ 3W 60~ 3 POS.

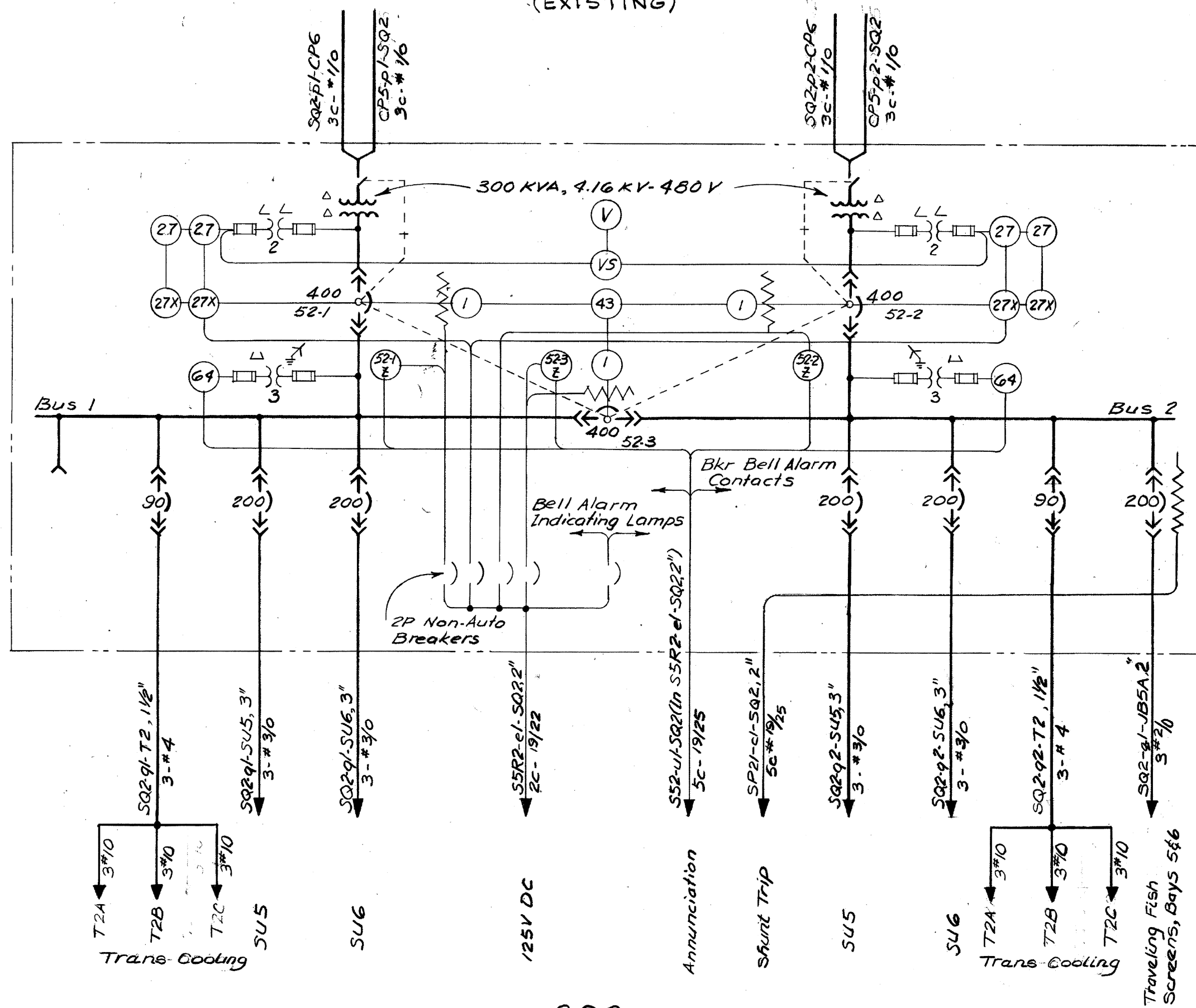
DIMENSIONS IN INCHES SCALE NTS		F.V. & B/M	
DTM. <i>Blank</i>	9/65	APPD. <i>W. A. WRIGHT</i>	9/65
		575F378	

CHGD.		APPD.		315F310
SUPV.		APPD. <i>J.M. Shulman</i>	<i>7/6/65</i>
DIV. & PLANT LOCATION <i>SWGR.</i>				E PGR. <i>146600</i>

SHEET ID

R-062

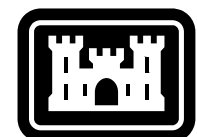
FINAL



2. Furnish and install two draw-out air circuit breakers in existing compartments as described in the specifications. Install Government-furnished cable from existing SQ1 to control center SU4.

DATE _____ BY Fred E. Moore

A		80SEP30		As Constructed	
REVISION		DATE		DESCRIPTION	
				BY	
U. S. ARMY ENGINEER DIVISION. N. P. PORTLAND, OREGON					
DESIGNED BY: RCM		LITTLE GOOSE LOCK AND DAM SNAKE RIVER, OREGON, WASHINGTON & IDAHO POWERHOUSE UNITS 4-6 ELECTRICAL DIAGRAM ONE LINE DIAGRAM SQ1 & SQ2			
DRAWN BY: GENT. 1218					
CHECKED BY: RRL					
PREPARED BY: 92					
92 CHIEF ELECTRICAL SECTION					
92 CHIEF ELECTRICAL SECTION		APPROVED: FOR DIV. ENGINEER CHIEF, ENGINEERING DIVISION SCALE AS SHOWN		DATE: 815 MAR. 0 7 SPEC. NO. 78-B-55	
SUBMITTED: CHIEF HYDRO-ELECTRIC DESIGN BRANCH		SHEET 195 LGP-1.9-6-1G21/I			



**US Army Corps
of Engineers®**

[illegible]

	DESIGNED BY:	R. WALLACE
	DRAWN BY:	AUGUST 1972
	CHECKED BY:	SOLICITATION NO.: W8122ZD2R0001
	SUBMITTED BY:	CONTRACT NO.:
	SIZE:	DRAWING NUMBER:
	FILENAME:	

LITTLE GOOSE LOCK AND DAM
POWERHOUSE
DC SYSTEM AND LOW VOLTAGE SWITCHGEAR
ELECTRICAL DIAGRAMS
ONE LINE DIAGRAM
SO1 & SO2

SHEET ID

R-064



The diagram shows two horizontal lines representing signals over time. The top line is labeled 'P50' and the bottom line is labeled 'NSQ'. The P50 signal is a high-frequency square wave. The NSQ signal is a low-frequency square wave. The diagram illustrates the timing of various events relative to these signals. The events are marked with vertical lines and labels at the bottom of the diagram:

- BUS 1 SUPPLY RKR (152-1)
- BUS TIE RKR (152-3)
- BUS 2 SUPPLY RKR (152-2)
- ALARM LIGHTS
- BUS TRANSFER RELAYS

AS CONSTRUCTED

HYDRO ELECTRIC DESIGN BRANCH, NPD

DATE 1971 SEP 7 BY

1. FOR LEGEND SEE DWG LOP-1-6-1A8/1.
2. FOR SCHEMATIC DIAGRAMS OF ELECTRICAL BREAKER CONTROL, AUTOMATIC BUS TRANSFER AND BREAKER ALARM LIGHTS, AND WIRING OF ANNUNCIATION CONTACTS SEE DWG LOP-1-6-1A8/1.
3. VARIATIONS IN EQUIPMENT ARRANGEMENT AND BREAKER CONTROL WILL BE ALLOWED TO FIT MANUFACTURER'S STANDARD CONSTRUCTION SUBJECT TO THE APPROVAL OF THE CONTRACTING OFFICER.
4. COMPARTMENTS SHALL BE CONSTRUCTED TO ACCOMMODATE FUTURE BREAKERS.
5. PROVIDE NAMEPLATES LABELED AS INDICATED BY CONTROL SOURCE DISTRIBUTION DIAGRAM.
6. THIS DRAWING, INCLUDING NOTES 1 THROUGH 5, WAS ISSUED FOR SOW-1-6-1A8/2 FOR PROCEEDMENT. GOVERNMENT-FURNISHED 480 VOLT SUBSTATION SOW DESIGN IS SUBJECT TO MODIFICATION IN ACCORDANCE WITH NOTE 3. WESTINGHOUSE ELECTRIC CORPORATION IS THE CONTRACTOR.

[illegible][illegible]

U.S. ARMY CORPS OF ENGINEERS WALLA WALLA DISTRICT 201 NORTH 3RD AVENUE SEATTLE, WASHINGTON	DESIGNED BY:	ISSUE DATE:
	DRAWN BY:	AUGUST 2022
	CHECKED BY:	SOLICITATION NO.:
		CONTRACT NO.:
	SUBMITTED BY:	DRAWING NUMBER:
	SIZE:	FILENAME:
		R-065.dgn
		ANSI D

LITTLE GOOSE LOCK AND DAM
POWERHOUSE
DC SYSTEM AND LOW VOLTAGE SWITCHGEAR
POWERHOUSE
480 VOLT SUBSTATION

SHEET ID

R-065



FRAME

FRAME

FRAME

[illegible]

U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS WALLA WALLA, WASHINGTON	DESIGNED BY:		DATE: 17 JUL. 2008
	DRAWN BY: L. HUSTON	CHECKED BY:	SOLICITATION NO.
	SUBMITTED BY:	CONTRACT NO. 08-P-159	
	CORE MASTER		
FILE NO. LGP-9-6-13/28			

**LITTLE GOOSE LOCK AND DAM
SNAKE RIVER, OREGON, WASHINGTON AND IDAHO**

Sheet number:
1 OF 2

[illegible]

U.S. ARMY CORPS OF ENGINEERS WALLA WALLA DISTRICT 201 NORTH 3RD AVENUE SEATTLE, WASHINGTON	DESIGNED BY:	AUGUST 2022
	DRAWN BY:	SOLICITATION NO.: W912EF22R0001
	CHECKED BY:	CONTRACT NO.:
	SUBMITTED BY:	DRAWING NUMBER:
	SIZE:	FILENAME:
		PURPOSE:

LITTLE GOOSE LOCK AND DAM
POWERHOUSE
DC SYSTEM AND LOW VOLTAGE SWITCHGEAR
SQ2 MOTOR CONTROL UPGRADE
PROJECT INSTALLED QED6 SWITCHBOARD
ONE LINE

SHEET ID

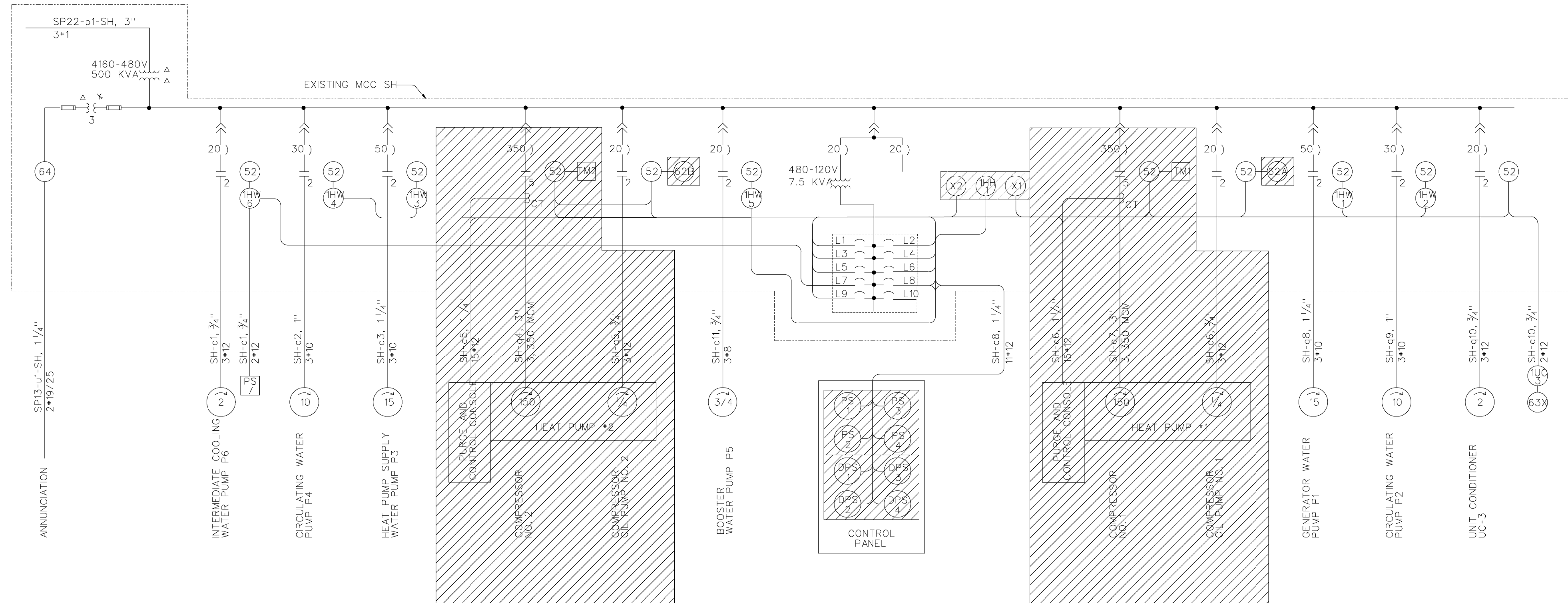
R-066

FINAL

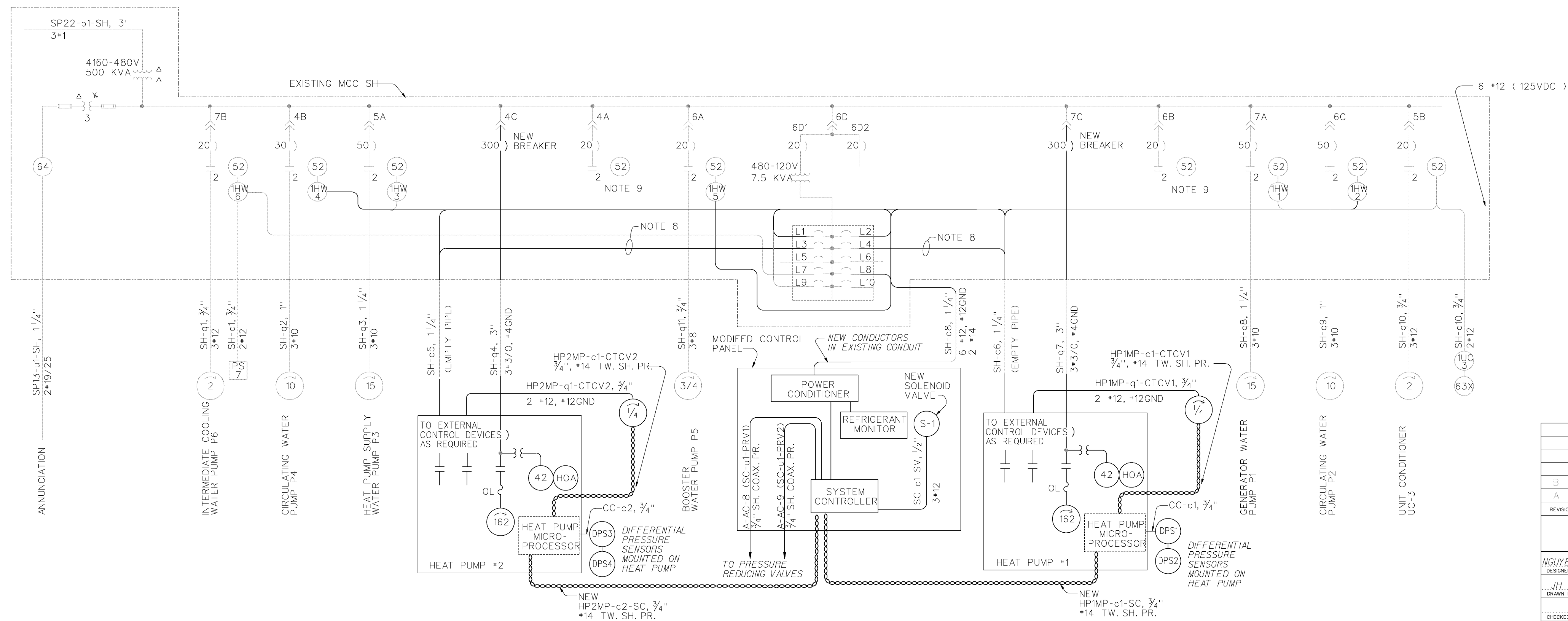
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201 NORTH 3RD AVENUE SEATTLE, WASHINGTON	SOLICITATION NO.: W912EZF2R0001	
	CONTRACT NO.:	
	CHECKED BY:	DRAWING NUMBER:
	SUBMITTED BY:	FILENAME: R467.dgn
ANSI D		













POWERHOUSE
DC SYSTEM AND LOW VOLTAGE SWITCHGEAR
HEAT PUMPS REPLACEMENT
MCC SH ONE-LINE DIAGRAM
ELECTRICAL MODIFICATIONS



MCC SH SINGLE LINE DIAGRAM (DEMOLITION)

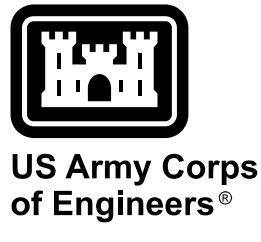


MCC SH SINGLE LINE DIAGRAM (MODIFIED)

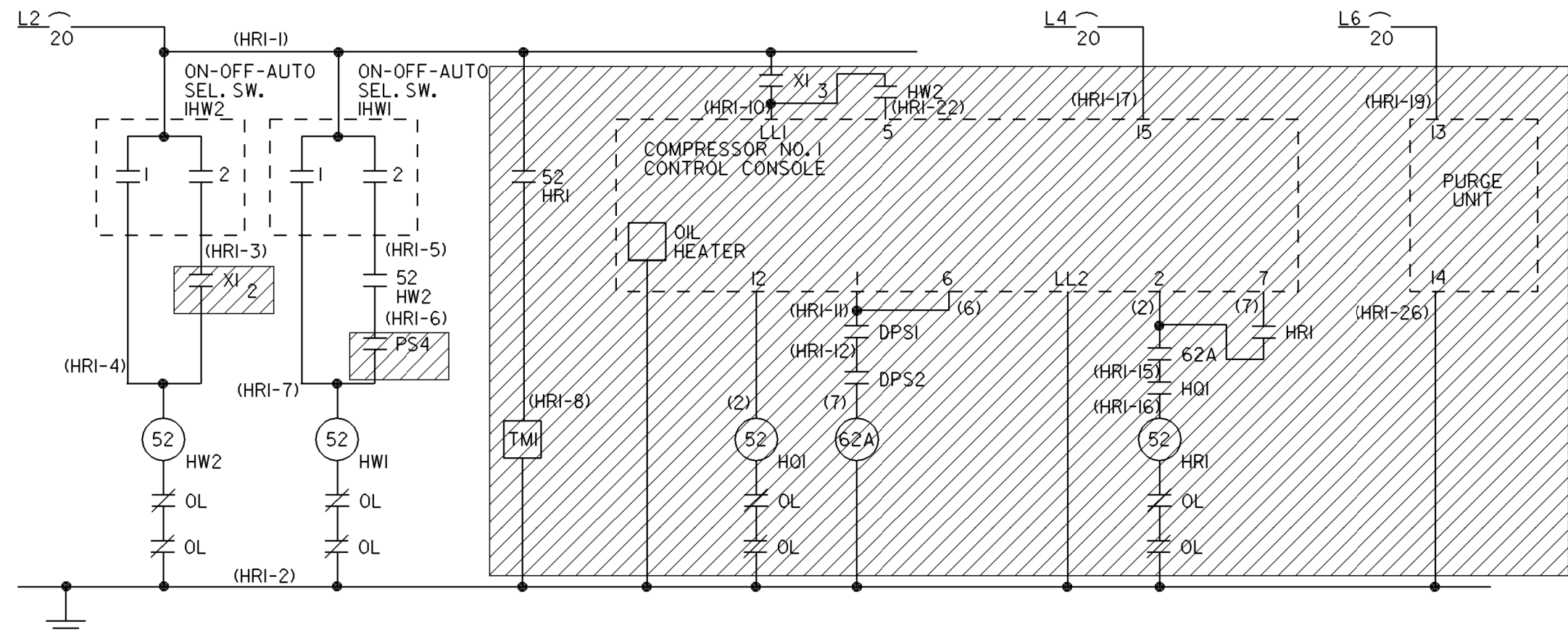
- LEGEND:
- | | |
|---|--|
|  | AIR CIRCUIT BKR |
|  | AC CONTACTOR, SIZE 2 (EXISTING) |
|  | DIFFERENTIAL PRESSURE SENSOR (NEW) |
|  | AUXILIARY RELAY (EXISTING) |
|  | HAND OFF AUTO (NEW) |
|  | HAND OFF AUTO (EXISTING) |
|  | MASTER OFF ON SWITCH (EXISTING) |
|  | TIME METER NO. 1 (EXISTING) |
|  | AC CONTACTOR (NEW)
COIL IDENTIFIED BY SUBSCRIPT LABEL |
|  | TIME DELAY RELAY (EXISTING) |
|  | ALARM RELAY (NEW)
COIL IDENTIFIED BY SUBSCRIPT LABEL |
|  | GAS PRESSURE RELAY (EXISTING) |

- ## NOTES
1. ALL ELECTRICAL ITEMS AND WIRING SHOWN WITH HASH MARKS SHALL BE REMOVED. REMOVE ASSOCIATED CONTROL AND INTERCONNECTING WIRING AS INDICATED ON SHEETS 17-18.
 2. REMOVE OLD IDENTIFYING NAME PLATE ON ABANDONED EQUIPMENT COMPTS. INSTALL NEW NAME PLATE WITH NEW INSCRIPTION. SEE SCHEDULE SHEET 18.
 3. NEW OR MODIFIED EQUIPMENT IS SHOWN IN BOLD LINE WEIGHT FOR THE MODIFIED SH SINGLE LINE DIAGRAM.
 4. SEE FOR INFORMATION ONLY REFERENCE DRAWINGS FOR EXISTING CONTROL DIAGRAMS.
 5. SEE SHEETS 20-22 FOR ADDITIONAL CONTROL MODIFICATIONS.
 6. DO NOT ROUTE THE COMMUNICATION CABLE (•14 TW, SH, PR.) IN THE SAME CONDUIT THAT CONTAINS 120 VOLT CONTROL OR POWER CONDUCTORS.
 7. COORDINATE NECESSARY FIELD WIRING (DIFFERENTIAL PRESSURE SENSORS, THERMOWELLS, TEMPERATURE CONTROL VALVES, ETC) WITH HEAT PUMP SUPPLIER.
 8. CONTROL VOLTAGES MAY BE DERIVED FROM 480 VOLT LINE SOURCE, HOWEVER, THIS CIRCUIT IS STILL REQUIRED FOR ALARM RELAYS.
 9. MOTOR CONTROLLER AND BREAKER SHALL REMAIN IN MCC SH BUT DISCONNECTED FROM PREVIOUS MOTOR.

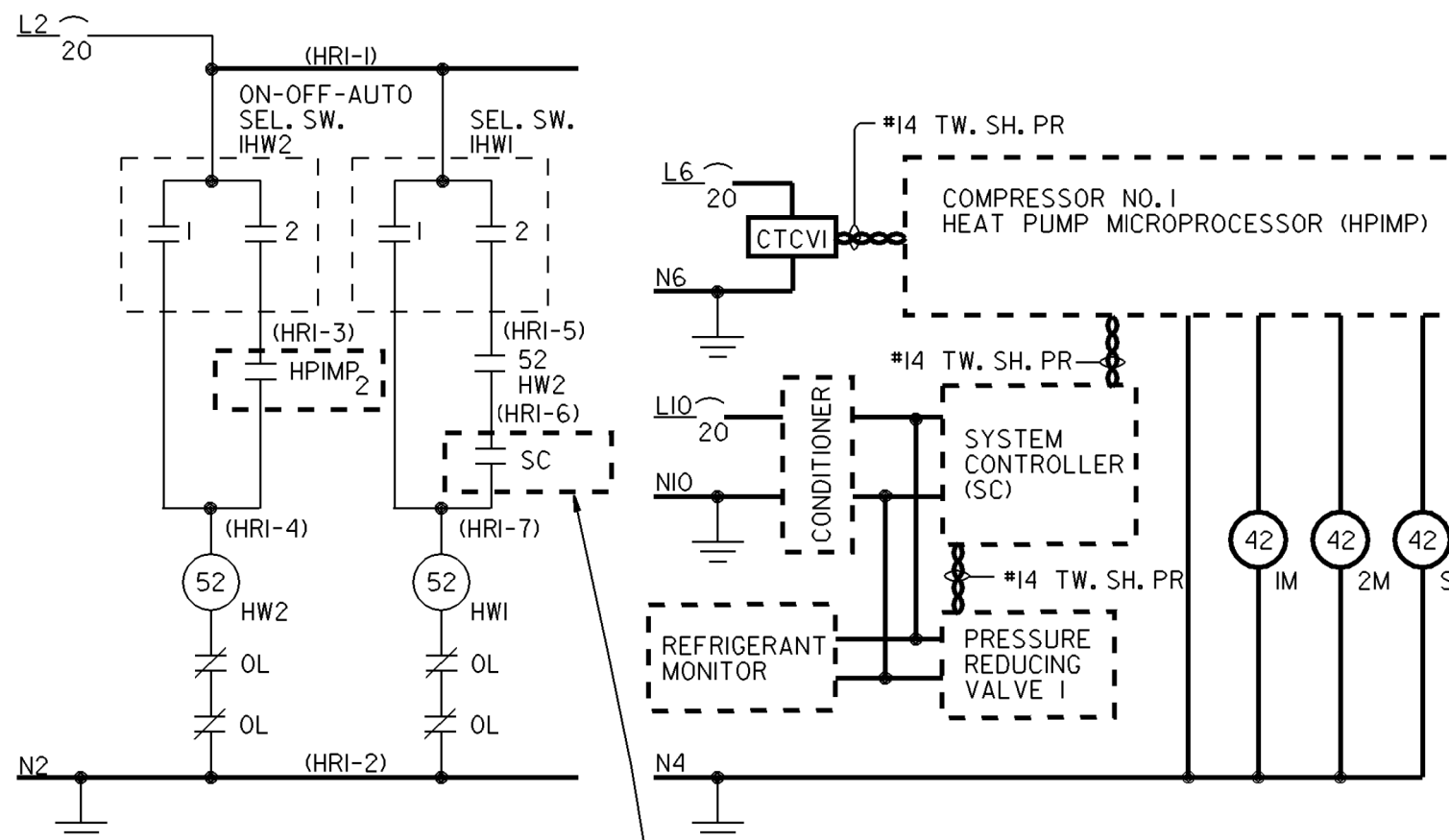
B	10/4/16	AS BUILT PER PROJECT PERSONNEL		ZB	
A	12/5	AS CONSTRUCTED			
REVISION	DATE	DESCRIPTION		CHGD.	APPR.
U . S . ARMY ENGINEER DISTRICT WALLA WALLA, WASHINGTON					
NGUYEN/EMBBEE		LITTLE GOOSE LOCK & DAM			
DESIGNED BY		SNAKE RIVER, OREGON, WASHINGTON AND IDAHO			
DRAWN BY		HEAT PUMPS REPLACEMENT			
CHECKED BY		MCC SH ONE-LINE DIAGRAM			
SUPERVISED:		ELECTRICAL MODIFICATIONS			
CHECK DIRECT DES. SEC.					
SUBMITTED:		DATE: 30, SEP., 04			
CHECK DESIGN BRANCH		SCALE AS SHOWN INV. NO. 05-B-0002			
APPROVED: Little Goose Powerhouse Station Power SQ 480V System/H 480V Substation SH/LGP-1-6-18, 4dgn		19 LGP-1-6-18/4			



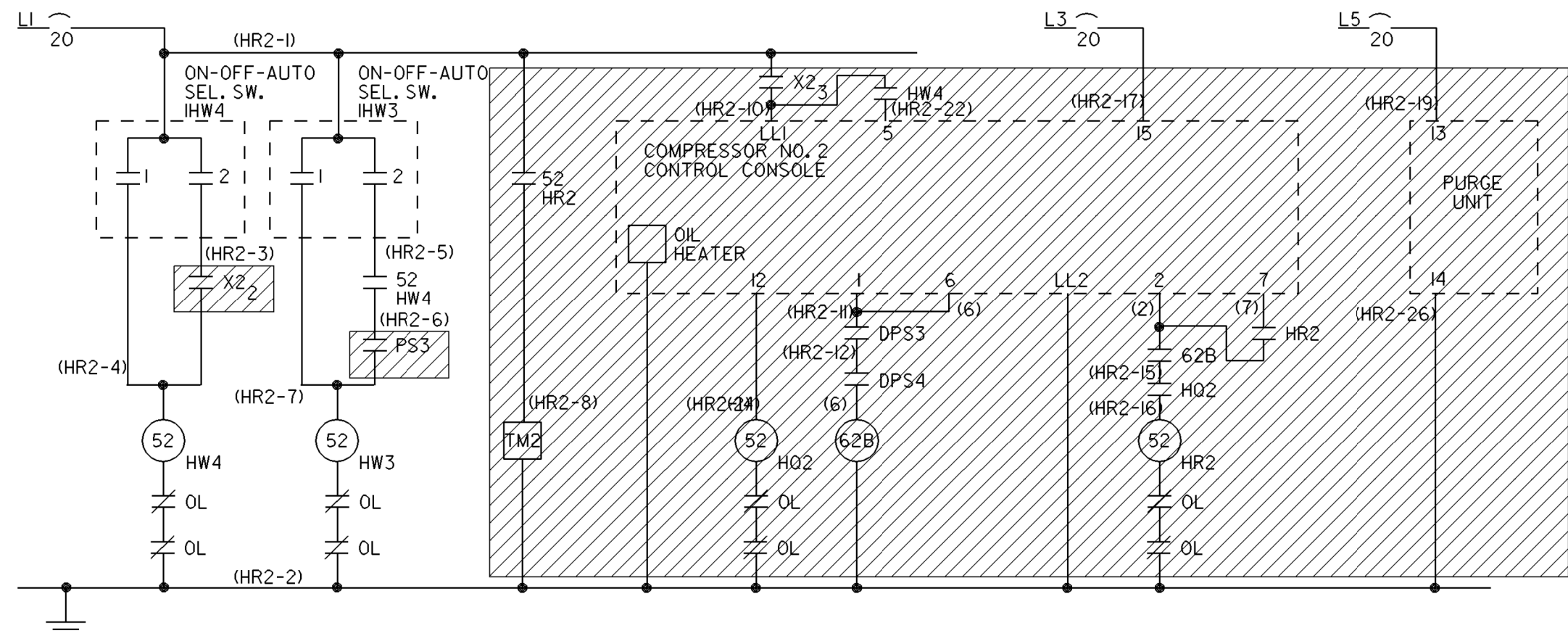
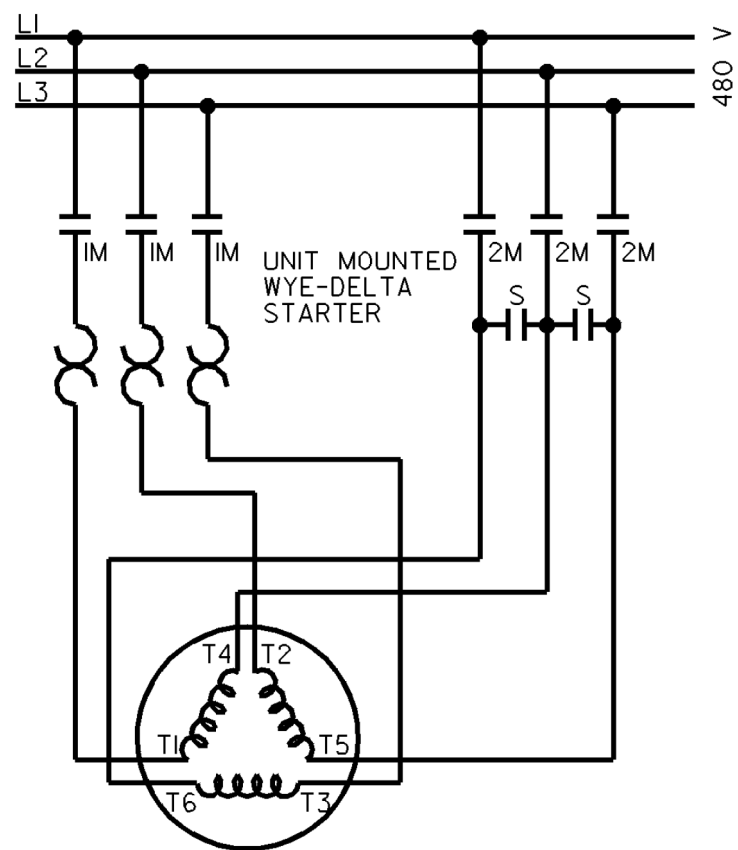
US Army Corps of Engineers®



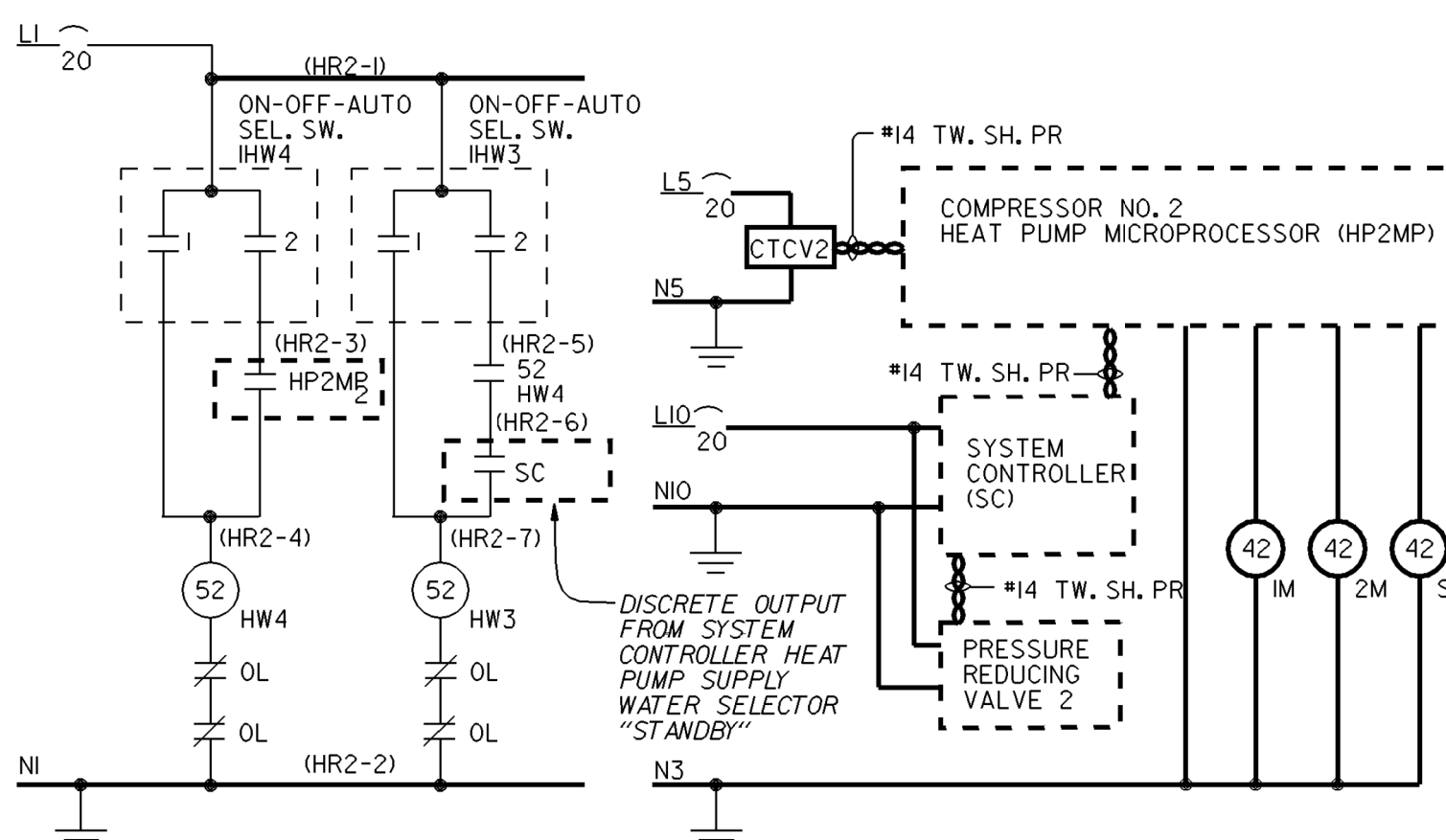
EXISTING HEAT PUMP NO. 1
SCHEMATIC DIAGRAM



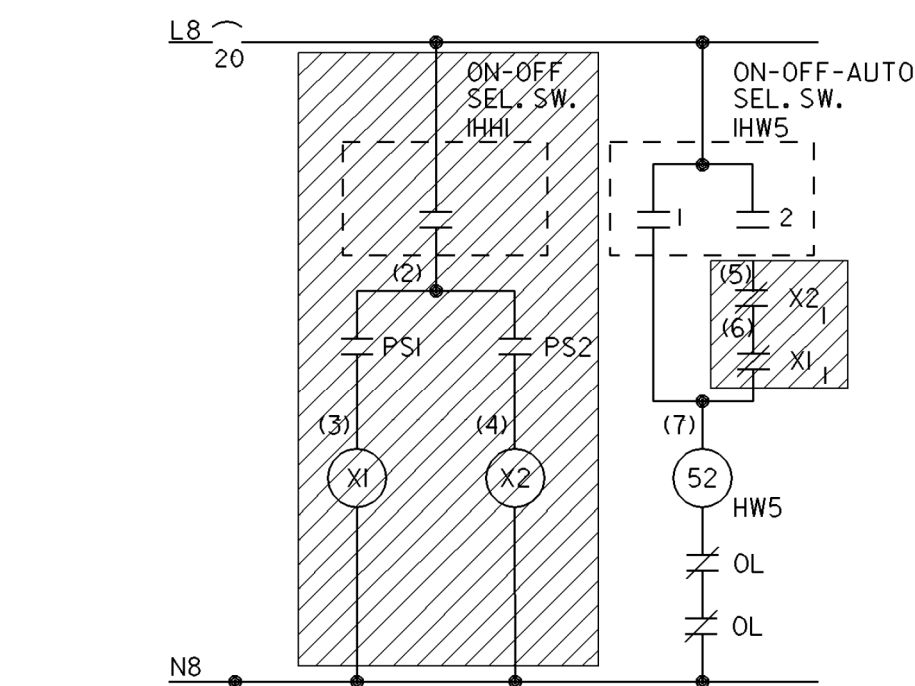
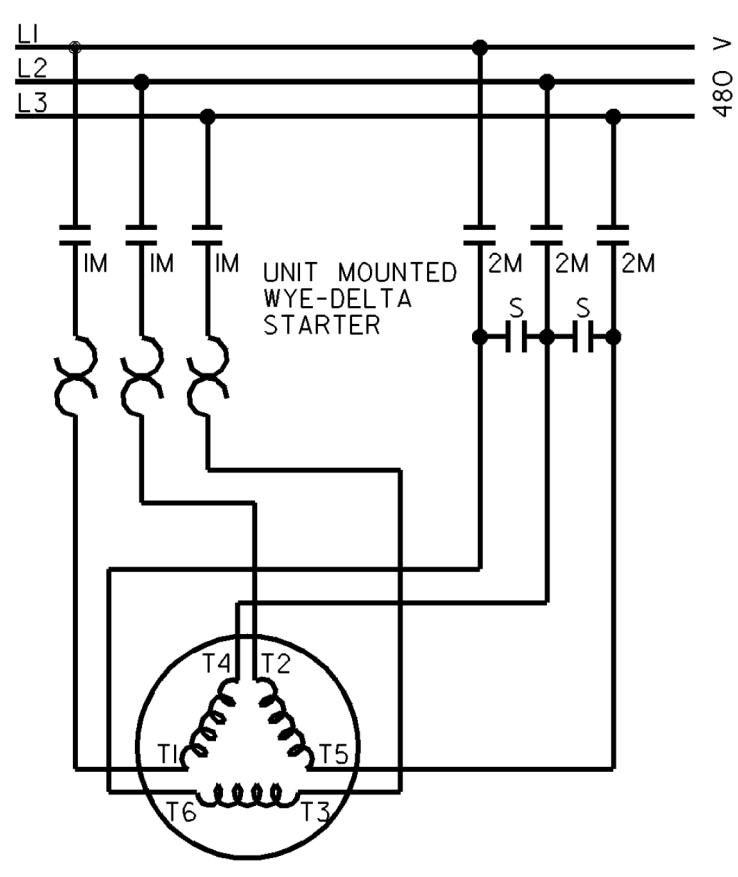
MODIFIED HEAT PUMP NO. 1
SCHEMATIC DIAGRAM



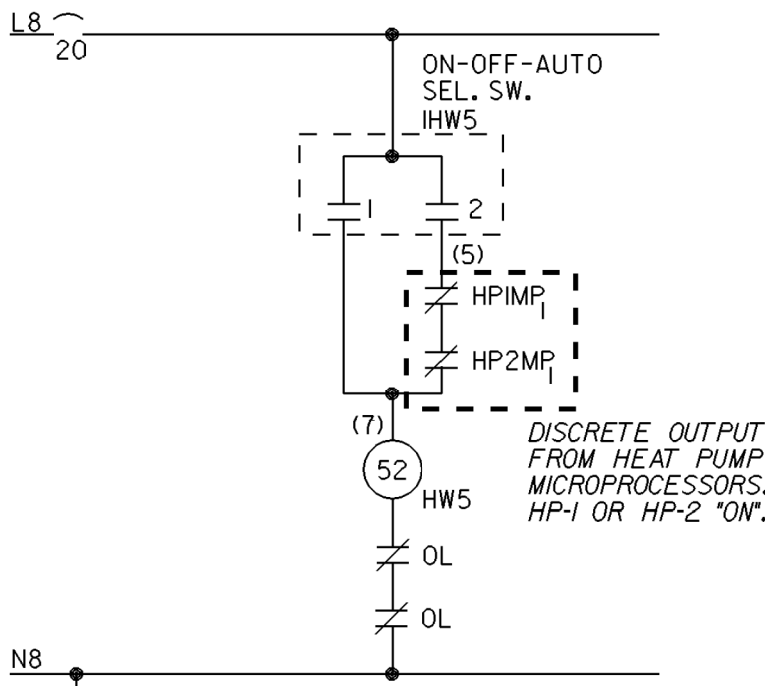
EXISTING HEAT PUMP NO. 2
SCHEMATIC DIAGRAM



MODIFIED HEAT PUMP NO. 2
SCHEMATIC DIAGRAM



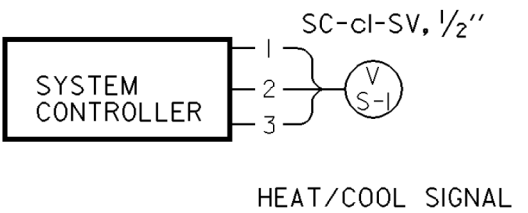
EXISTING MASTER CONTROL - BOOSTER PUMP P5
SCHEMATIC DIAGRAM



MODIFIED MASTER CONTROL - BOOSTER PUMP P5
SCHEMATIC DIAGRAM

- NOTES
- EXISTING HVAC CONTROL SYSTEMS NOT REMOVED SHALL BE INTERFACED WITH THE NEW SYSTEM CONTROLLER. PROGRAMMING OF THE CONTROLLER FOR REQUIRED INTERLOCKS AND OPERATING CONDITIONS SHALL BE AS DESCRIBED IN THE TYPICAL SEQUENCE OF OPERATION CONTAINED IN SPECIFICATION SECTION 15650.
 - CONTROL MODIFICATIONS INDICATED DO NOT INCLUDE ALL NECESSARY INTERCONNECTIONS WITH THE NEW SYSTEM CONTROLLER. ADDITIONAL MODIFICATIONS SHALL BE DETERMINED BY THE CONTRACTOR AFTER CONTRACT AWARD AND APPROVAL OF HEAT PUMP EQUIPMENT. CONTRACTOR SHALL BE RESPONSIBLE FOR RESEARCHING EXISTING CONTROL SYSTEMS, AND PROVIDING MARKUP DRAWINGS INDICATING REQUIRED CONTROL SYSTEM MODIFICATIONS TO SUIT THE HEAT PUMP PACKAGE SUPPLIED. COMPLETE WIRING DIAGRAMS AND MARKUP DRAWINGS INDICATING CONTROL SYSTEM MODIFICATIONS SHALL BE SUBMITTED FOR APPROVAL.
 - ALL ELECTRICAL ITEMS AND WIRING SHOWN WITH HASH MARKS SHALL BE REMOVED.
 - NEW OR MODIFIED EQUIPMENT IS SHOWN IN BOLD LINE WEIGHT.
 - SEE FOR INFORMATION ONLY REFERENCE DRAWINGS FOR EXISTING CONTROL DIAGRAMS.
 - WIRE LABELS SHOWN IN PARENTHESIS, I.E. (HRI-4).
 - SEE LEGEND ON SHEET 16 FOR DEVICE IDENTIFICATION.

DISCRETE OUTPUT FROM SYSTEM CONTROLLER, SWITCHOVER SOLENOID VALVE, LINE CONTROL FROM SAME CIRCUIT FEEDING SYSTEM CONTROLLER (CIRCUIT 10)



NEW HEAT/COOL SOLENOID VALVE CONTROL
SCHEMATIC DIAGRAM



REVISION	DATE	DESCRIPTION	CHD.	APPR.
A	12/5	AS CONSTRUCTED		
U. S. ARMY ENGINEER DISTRICT WALLA WALLA, WASHINGTON				
LITTLE GOOSE LOCK & DAM SNAKE RIVER, OREGON, WASHINGTON AND IDAHO				
HEAT PUMPS REPLACEMENT				
CONTROL WIRING DIAGRAMS 1 WIRING MODIFICATIONS				
DESIGNED BY: NGUYEN/EMBREE		DATE: 30 SEP 04		
DRAWN BY: JH				
CHECKED BY: DEWITT				
SUPERVISED BY:				
CHIEF ELECT. DES. SEC. SUBMITTED:				
CHIEF DESIGN BRANCH		SCALE AS SHOWN INV. NO. 05-B-0002		
SHEET NO. 20		FILE NO. LGP-1-6-18/5		

DESIGNED BY:	U.S. ARMY CORPS OF ENGINEERS WALLA WALLA DISTRICT 201 NORTH 3RD AVENUE SEATTLE, WASHINGTON
DRAWN BY:	
CHECKED BY:	
SUBMITTED BY:	
FILE NAME:	R-068.dgn
SIZE:	ANSI D
DRAWING NUMBER:	
CONTRACT NO.:	
SOLICITATION NO.:	
ISSUE DATE:	AUGUST 2002

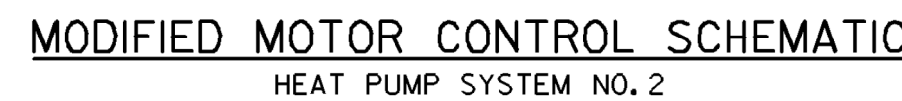
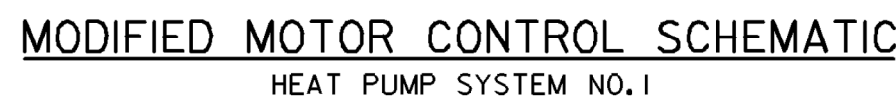
LITTLE GOOSE LOCK AND DAM
POWERHOUSE
DC SYSTEM AND LOW VOLTAGE SWITCHGEAR
HEAT PUMPS REPLACEMENT
CONTROL WIRING DIAGRAMS 1
WIRING MODIFICATIONS

SHEET ID
R-068



NOTE
SCHEMATICS FOR UNIT CONDITIONER
AND INTERMEDIATE COOLING PUMP
PROVIDED FOR INFORMATION ONLY.
NO WIRING MODIFICATIONS REQUIRED.

- NOTES
1. REFER TO FOR INFORMATION DRAWINGS FOR ADDITIONAL DETAILS OF ORIGINAL MOTOR CONTROL CENTER INSTALLATION.
 2. ITEMS WHICH ARE TO BE REMOVED OR MODIFIED ARE SHOWN IN BOLD LINE WEIGHT.



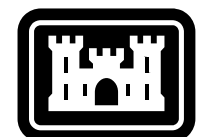
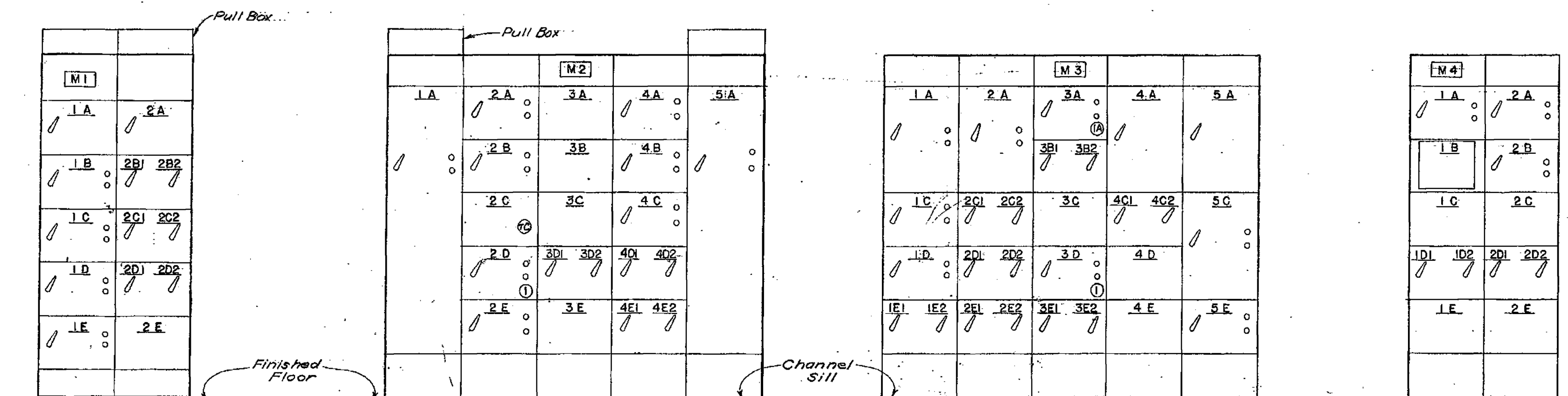
- NOTES
1. REFER TO FOR INFORMATION DRAWINGS FOR ADDITIONAL DETAILS OF ORIGINAL MOTOR CONTROL CENTER INSTALLATION.
 2. NEW OR MODIFIED ITEMS ARE SHOWN IN BOLD LINE WEIGHT.
 3. EXISTING POWER AND CONTROL WIRING THAT BECOMES OBSOLETE DUE TO THE NEW HEAT PUMP INSTALLATION SHALL BE REMOVED. THIS NOTE APPLIES TO WIRING CONNECTED TO SH, OR RATED BETWEEN SH, THE HEAT PUMPS AND THE HEAT PUMP CONTROL PANEL.
 4. THIS DRAWING REFLECTS WIRING CONDITIONS AS SHOWN UNDER ORIGINAL INSTALLATION, AND DOES NOT INCLUDE ANY MODIFICATIONS WHICH HAVE BEEN PERFORMED TO VARIOUS CONTROL AND POWER CIRCUITS OVER THE LIFE OF THE INSTALLATION. IT IS ANTICIPATED THAT MODIFICATIONS ARE MINIMAL, AND THE DRAWING IS A FAIRLY ACCURATE DESCRIPTION OF THE EXISTING CONDITIONS. HOWEVER, THE CONTRACTOR SHOULD EXPECT TO ENCOUNTER SOME VARIATIONS IN THE FIELD WIRING WHICH MAY REQUIRE TRACING AND RINGING-OUT OF CIRCUITS.
 5. SEE SHEETS 20 AND 22 FOR REVISIONS TO WIRING SCHEMATICS AND CORRESPONDING CHANGES TO MCC WIRING.
 6. WIRE LABELS SHOWN IN PARENTHESIS. I.e. (HRI-4).
 7. CONTROL VOLTAGES ARE FROM HEAT PUMP CONTROLLER.
 8. CONTROL VOLTAGE WIRING SHALL BE REPLACED OR MODIFIED WITH NEW AS INDICATED.

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LITTLE GOOSE LOCK AND DAM
POWERHOUSE
SYSTEM AND LOW VOLTAGE SWITCHGEAR
HEAT PUMPS REPLACEMENT
CONTROL WIRING DIAGRAMS 2
WIRING MODIFICATIONS

SHEET ID

R-069

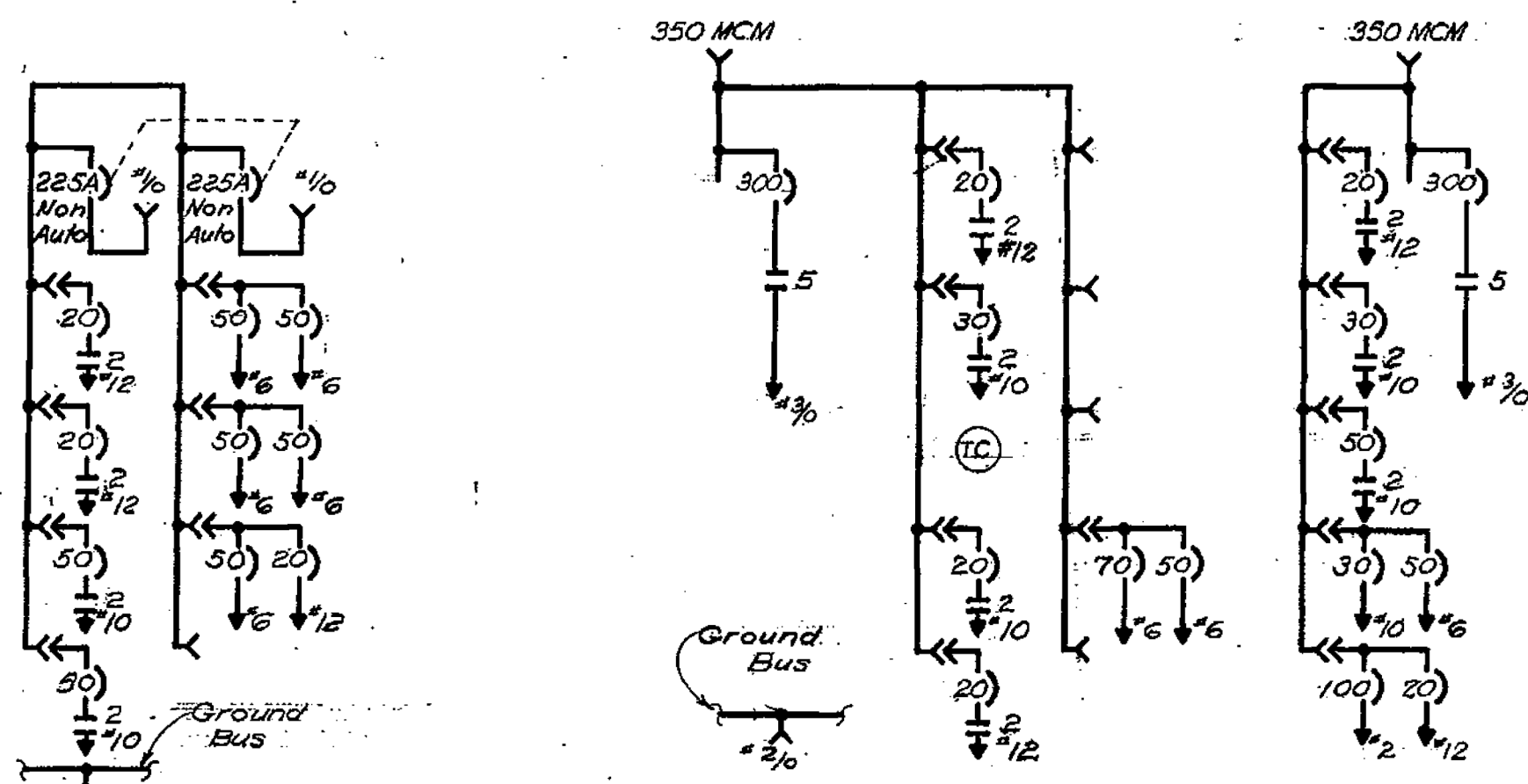
US Army Corps
of Engineers®

FRONT VIEW

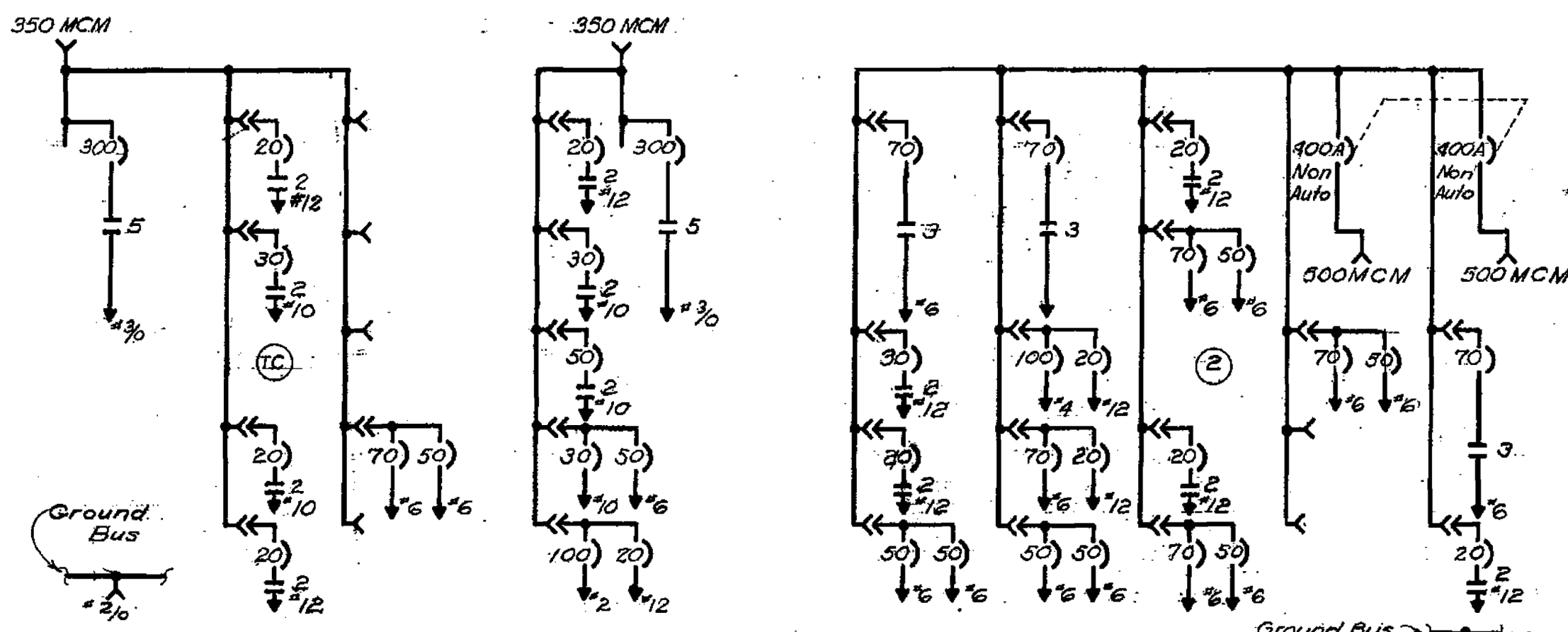
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FRONT VIEW

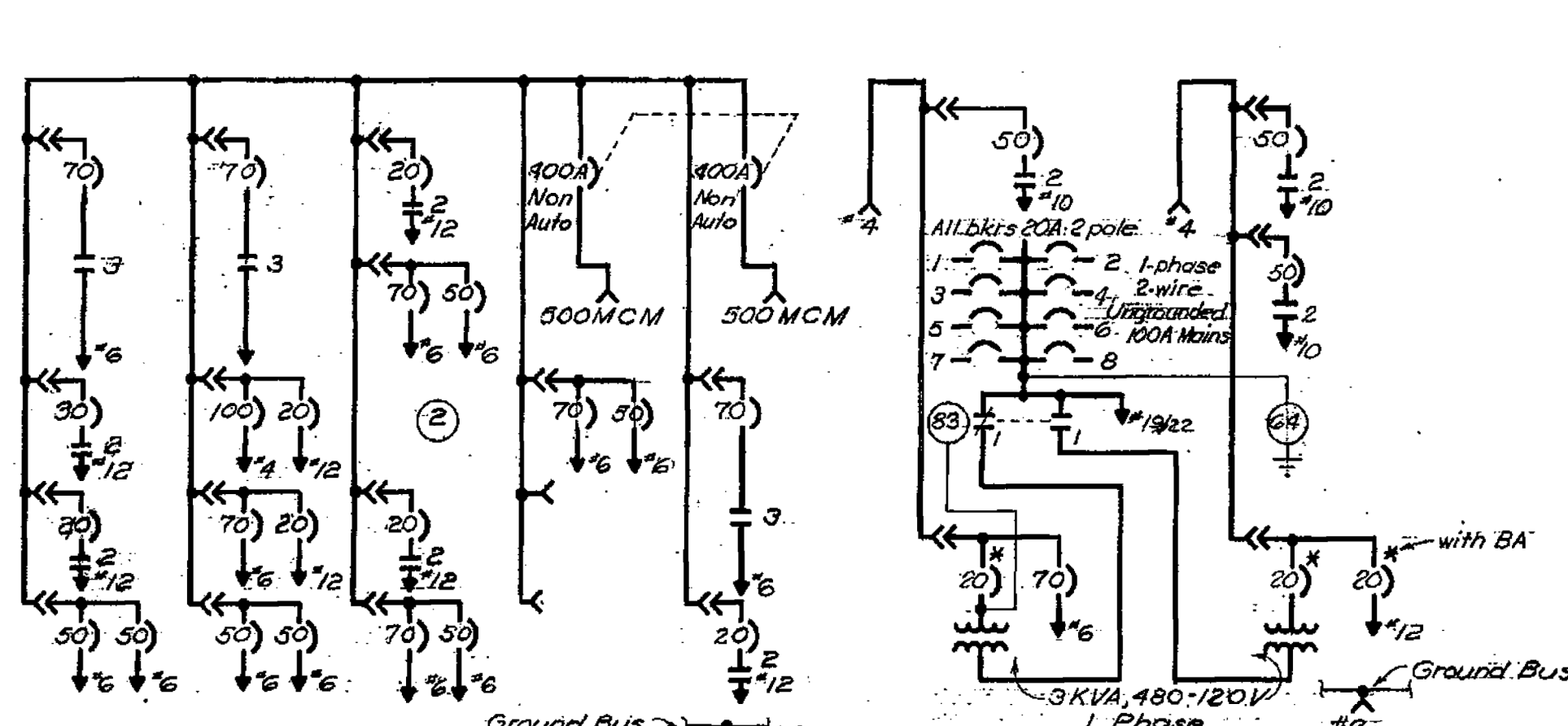
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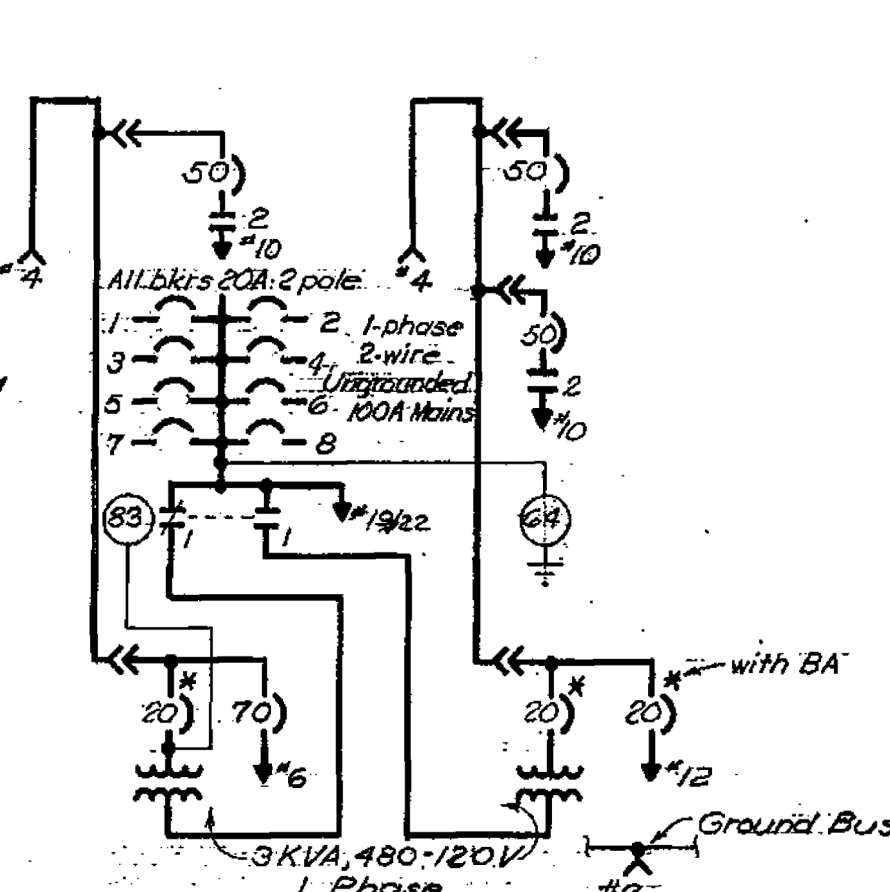
ONE LINE



ONE LINE



ONE LINE



ONE LINE

NAMEPLATE SCHEDULE

NO.	FIRST LINE	SECOND LINE
M1	CQ01 480 VOLT	CONTROL CENTER
1A	MAIN BREAKER	BUS 1
1B	TRANSIL OIL	PUMP NO.1
1C	TRANSIL OIL	PUMP NO.2
1D	LUBE OIL	PUMP NO.3
1E	DIRTY OIL	PUMP NO.4
2A	MAIN BREAKER	BUS 2
2B	OIL PURIFIER	OUTLET NO. 1
2C	OIL PURIFIER	OUTLET NO. 2
2D	OIL PURIFIER	OUTLET NO. 3
2E	OIL PURIFIER	OUTLET NO. 4
3A	Blank (See Note 2)	
3B	None (See Note 2)	
3C	None (See Note 2)	
4A	Blank (See Note 2)	
4B	Blank (See Note 2)	
4C	Blank (See Note 2)	
4D	Blank (See Note 2)	
4E	Blank (See Note 2)	
5A	Blank (See Note 2)	

CQ01

NAMEPLATE SCHEDULE

NO.	FIRST LINE	SECOND LINE
M2	CQ02 480 VOLT	CONTROL CENTER
1A	STATION AIR	COMPRESSOR NO.3
1B	EFFLUENT	PUMP NO.1
1C	STATION AIR	COMPRESSOR NO.1
1D	DECK LIGHTS	TIME CONTROL
1E	TAIL RACE	DECK LIGHTS
2A	Blank (See Note 2)	
2B	None (See Note 2)	
2C	None (See Note 2)	
3A	Blank (See Note 2)	
3B	None (See Note 2)	
3C	None (See Note 2)	
4A	Blank (See Note 2)	
4B	Blank (See Note 2)	
4C	Blank (See Note 2)	
4D	Blank (See Note 2)	
4E	Blank (See Note 2)	
5A	Blank (See Note 2)	

CQ02

NAMEPLATE SCHEDULE

NO.	FIRST LINE	SECOND LINE
M3	CQ04 480 VOLT	CONTROL CENTER
1A	INTAKE GATE	HYD PUMP NO.1
1B	INTAKE GATE	HYD PUMP NO.3
1C	UNIT CONDITIONER	UC-2
1D	OIL PURIFIER	OUTLETS
1E	OIL PURIFIER	OUTLETS
1F	OIL PURIFIER	OUTLETS
2A	INTAKE GATE	HYD PUMP NO.2
3A	ELEVATOR	COMPRESSOR NO.1
3B	AIR CKT BRK	CRANE
3C	TRASH RACK	COMPRESSOR NO.2
3D	AIR CKT BRK	OUTLETS
3E	OIL PURIFIER	OUTLETS
3F	OIL PURIFIER	OUTLETS
4A	UNIT CONDITIONER	UC-1
4B	LIGHT TRANS	TRO5
4C	480 VOLT	OUTLETS
4D	INTAKE GATE	HYD PUMP RELAY
4E	INTAKE DECK	LIGHTS
4F	LIGHT TRANS	TRO7
5A	480 VOLT	OUTLETS
5B	MAIN BREAKER	BUS 1
5C	WATER	HEATER
5D	INTAKE CRANE	HEATER
5E	None (See Note 2)	
5F	None (See Note 2)	
5G	None (See Note 2)	
5H	None (See Note 2)	
5I	None (See Note 2)	
5J	None (See Note 2)	
5K	None (See Note 2)	
5L	None (See Note 2)	
5M	None (See Note 2)	
5N	None (See Note 2)	
5O	None (See Note 2)	
5P	None (See Note 2)	
5Q	None (See Note 2)	
5R	None (See Note 2)	
5S	None (See Note 2)	
5T	None (See Note 2)	
5U	None (See Note 2)	
5V	None (See Note 2)	
5W	None (See Note 2)	
5X	None (See Note 2)	
5Y	None (See Note 2)	
5Z	None (See Note 2)	

CQ04

NAMEPLATE SCHEDULE

NO.	FIRST LINE	SECOND LINE
M4	CQ05 480 VOLT	CONTROL CENTER
1A	MG 1	MOTOR SUPPLY
1B	PREF AC	120 PANEL
1C	PREF AC	TRANSFER SW
1D	PREF AC	BUS 1
1E	PREF AC	TRO5
1F	PREF AC	TRANS-BUS 1
2A	MG 2	MOTOR SUPPLY
2B	MG 3	MOTOR SUPPLY
2C	PREF AC	GND DETECTOR
2D	PREF AC	BUS 2
2E	48 VOLT MG4	MOTOR SUPPLY
2F	PREF AC	TRANS-BUS 2

CQ05

PREFERRED AC PANELBOARD
DIRECTORY SCHEDULE

BKR NO.	DESCRIPTION
1	METER SHOP
2	TELEPHONE ROOM
3	OFFICES
4	CODE CALL
5	
6	
7	
8	

NO SCALE

LEGEND

In accordance with ASA standards C37.2-1962 and Y32.2-1962 except as noted.

- 20) Air circuit breaker; 3 pole with thermal and magnetic overload devices except as noted; number indicates trip rating.
- 1/2 Contactor; 3 pole with manual reset overload relays except as noted; number indicates NEMA size.
- 1/2 Outgoing cable; number indicates wire size.
- (R) Indicating lights; R-red, G-green.
- 1/2 Overload relay contact.
- ① (A) Selector switch. See developments.
- ② AC contactor operating coil
- ③ DC contactor operating coil
- ④ Time delay relay
- ⑤ Time clock
- +— Key interlock
- 1A Circuit or compartment number; see nameplate schedule.
- 1M1 Master nameplate
- Terminal block point for external connection.
- BA Breaker alarm contact; closes on automatic trip.

NOTES

- The number of vertical sections shall be as shown; otherwise, variations in equipment arrangement will be allowed to fit manufacturers standard construction subject to approval of the Contracting Officer.
- All empty compartments shall have blank covers and be constructed to accommodate future operating units.
- Control transformers for operating units 1D in CQ01, 1A, 2B, 4B, 4C, 5A in CQ02 and 5C in CQ04 shall each have sufficient capacity for an external continuous load of 100va consisting of solenoid valves, magnetic unloaders, etc.
- No overload devices are required for contactors in CQ02-2D, CQ04-3D and CQ05-1C.
- Each control center shall be shipped in one piece.
- Typical Schematic Diagrams and Control Connections are shown on Dwg LGP-1-6-1A8/14.

This drawing, including Notes 1 through 6, was issued as LGP-1-6-1A8/14 for procurement of Government-furnished 480 volt Control Centers CQ01, CQ02, CQ04 and CQ05, and has been revised to reflect changes made during procurement from Westinghouse Electric Corporation.

- B. Remove nameplate engraved "SLUDGE PUMP" and replace with blank nameplate.

AS CONSTRUCTED

HYDRO ELECTRIC DESIGN BRANCH, NPD

DATE 1971 SEP 7 BY J. J. J.



DESIGNED BY: J. J. J.	DATE: 25 Jan 68
DRAWN BY: J. J. J.	
CHECKED BY: E. M. S.	
APPROVED BY: J. J. J.	
SUBMITTED BY: J. J. J.	
ONLY HYDRO-ELECTRIC DESIGN BRANCH	
FILE NO. DACHES-1-6-1A8/14	
U. S. ARMY ENGINEER DIVISION. N. P. PORTLAND, OREGON	
LITTLE GOOSE LOCK AND DAM SNAKE RIVER, OREGON, WASHINGTON & IDAHO POWERHOUSE 480 VOLT CONTROL CENTERS CQ01, CQ02, CQ04 & CQ05	
SCALE AS SHOWN	SPEC. NO.
LGP-1-6-1A8/14	
SHEET 10	
VOL NO. II	

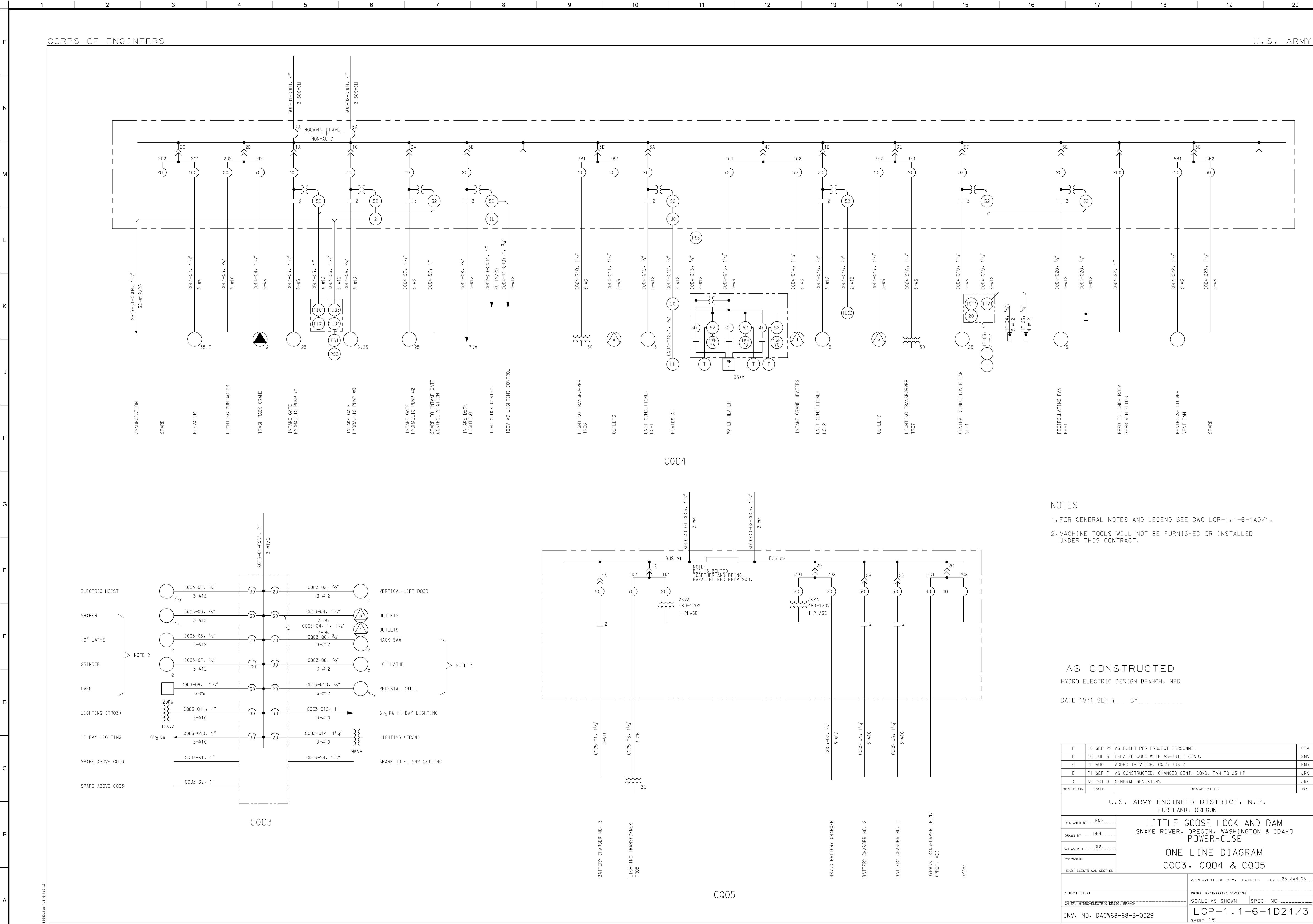
FOR INFORMATION ONLY

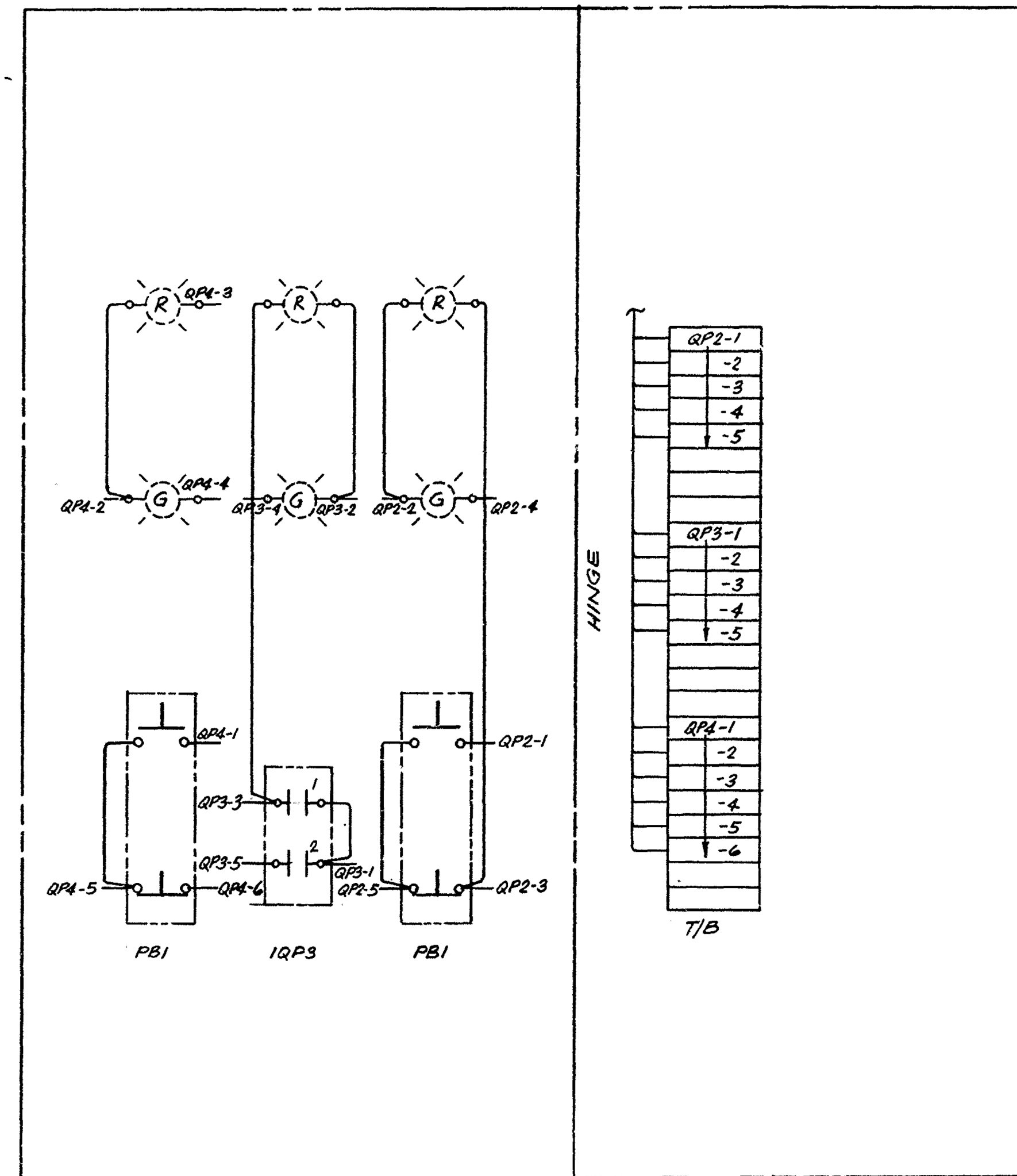
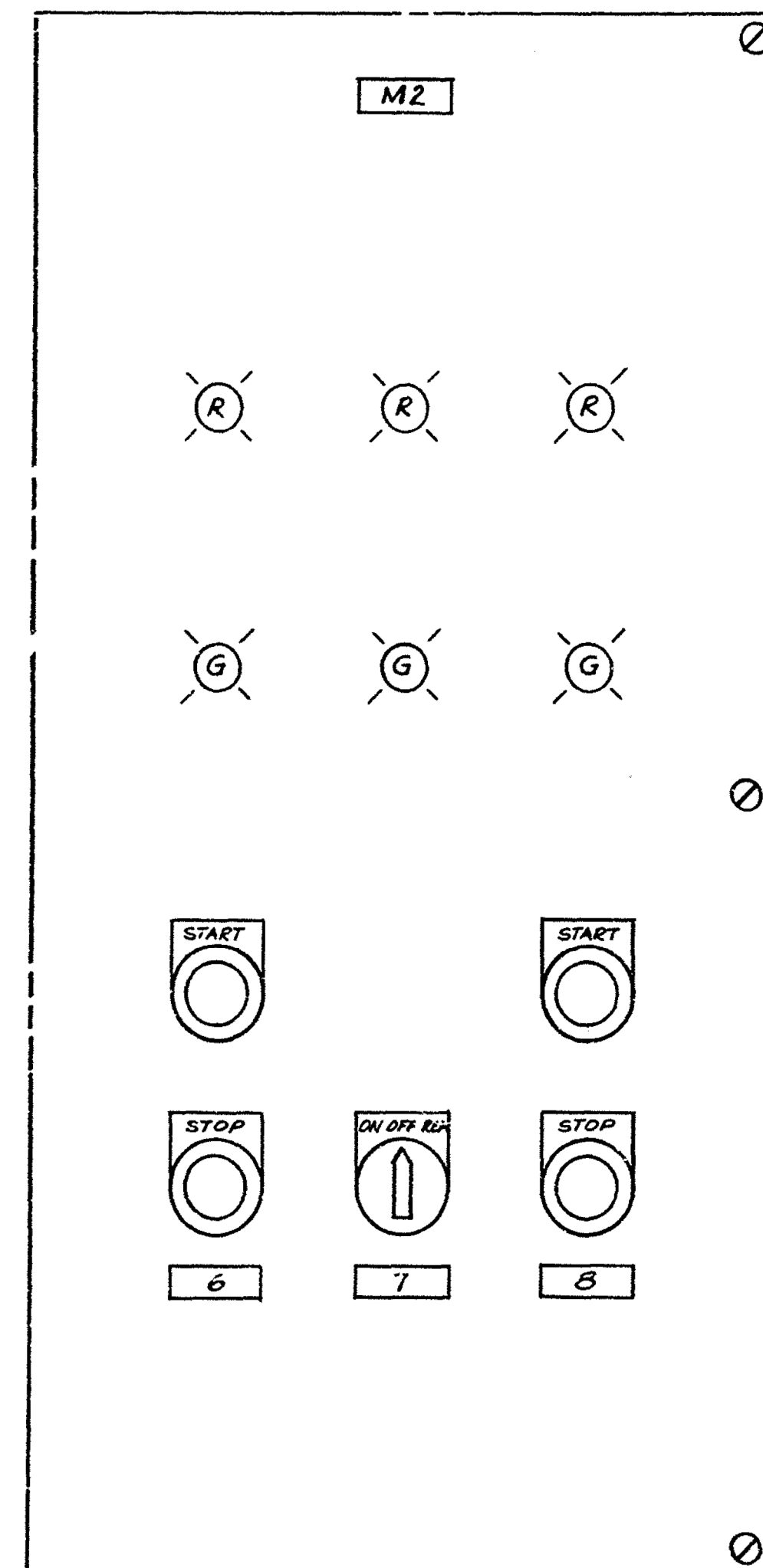
LITTLE GOOSE LOCK AND DAM
POWERHOUSE
DC SYSTEM AND LOW VOLTAGE SWITCHGEAR
POWERHOUSE
480 VOLT CONTROL CENTERS
CQ01, CQ02, CQ04 & CQ05

SHEET ID

R-070

FINAL





BILL OF MATERIAL :						
NO.	NAMEPLATE INSCRIPTION		Q.N.	MFR	CAT. NO.	DESCRIPTION
	1 ST LINE	2 ND LINE				
M2	OIL TRANSFER	PUMPS	1	◇	3 X 1 BOW	NAMEPLATE
CAB			1	ALWALT	AW2020612-MDX	20H X 20W X 6.0 CABINET, NEMA TYPE 12 (PVC GA MIN.) MODIFIED TO HAVE DOOR W/ 3 PT. TEE-HANDLE CATCH LOCK W/ (2) CORBIN & WEL KEYS
6	TRANSIL OIL	#2	1	◇	3 X 1 BOW	NAMEPLATE
7	LUBE OIL	#3	1			
8	DIRTY OIL	#4	1			
PB1			2	G.E.C.O.	CR2940-UN2008/USDA	START PUSHBUTTON
			2		NP119361A	NAMEPLATE
			2		CR2940-UN2008/USDA	STOP PUSHBUTTON
			2		NP119370A	NAMEPLATE
IQP3			1		CR2940-UB2028	3 POSITION SELECTOR SWITCH, INO-INC
			1		NP190663B	BLANK NAMEPLATE W/ INSCRIPT'YON OFF-REMOTE
REG			6		CR2940-UC218A1	6SG TYPE, MD. LT, 125VAC, LAMP W/ CHLORALABRA BASE
			3		CR2940-UC218B2	RED LENS
			3		CR2940-UC218C2	GREEN LENS
7/B			2	BUCHANAN	B112	12P, 750V, ONE PIECE TYPE TERM. BLOCK
					S112	MARKER STRIP

- NOTES:
1. CABINET TO BE NEMA TYPE 12. (14 U.S. GA. STEEL MIN., GALV.).
 - △ 2. FINISH - ELECTRO-GALVANIZED
CONFORMING TO U.L. STANDARDS.(U.L.50)
 3. DEVICES TO BE OF MANUFACTURE AS NOTED IN I.C.M.
 4. NAMEPLATES TO BE 3X1 BLACK ON WHITE LAMINATED BAKELITE,
WHITE LETTERS. (SCREW-ON TYPE)
 5. CONSTRUCTION TO BE IN ACCORDANCE WITH NEMA INDUSTRIAL
CONTROL STANDARDS.
 6. DEVICES WIRED TO TERMINAL BLOCKS AS SHOWN. WITH "STAR-KIN" LUGS.
 7. WIRE TO BE G.E. TYPE "SIS", #14 AWG MIN., HINGE WIRE 60 STRAND
 - △ 8. ALL WIRES SHALL BE TAGGED AT EACH END W/ VARTIL POLYESTER TUBING
W/FIBERGLASS LINING AS MADE BY FLOY TAG MFG. CO.

1-UNIT REQ'D

SHOP NOTE :
SHOP INSPECTION REQUIRED.

SHOP INSTRUCTIONS REQUIRED.

BID ITEM : #277	CONTRACT NO. DACW68-70-C-0095
REF. JOB PLANS GDD-1-6-1D24/1 VOL. <u>VIII</u> SHT. #16 GDD-1-6-1A8/11 VOL. <u>VII</u> SHT. #75	
CUSTOMERS ITEM NO. M16-2	WT. 60 #

<input checked="" type="checkbox"/> APPROVED <input type="checkbox"/> RETURNED FOR CORRECTION RESUBMIT <input type="checkbox"/> APPROVED AS CORRECTED SEE COMMENT THE UNITED STATES OF AMERICA BY <u>[Signature]</u> Authorized Representative of the Contracting Officer DATE <u>22 APR 1971</u>
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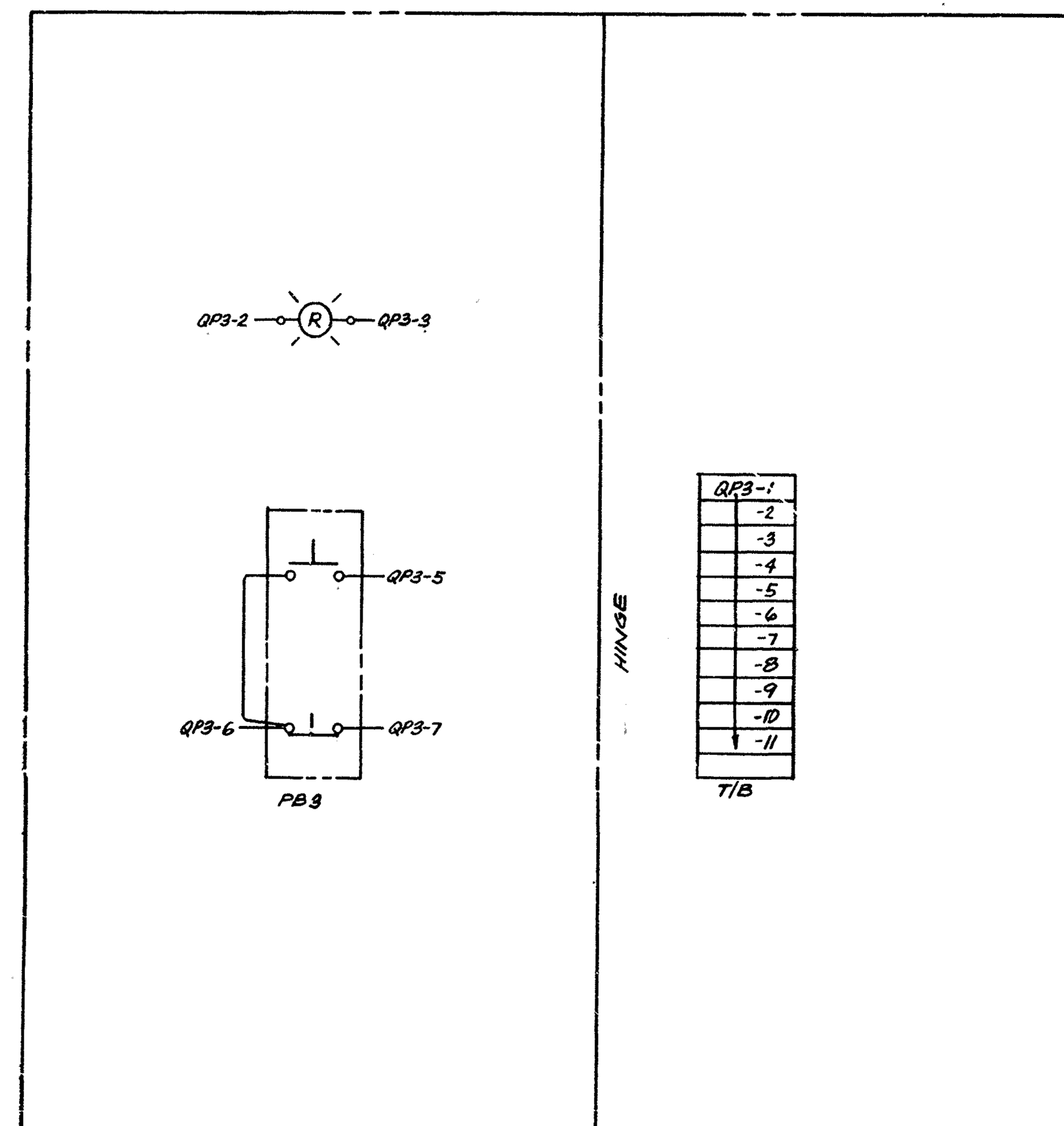
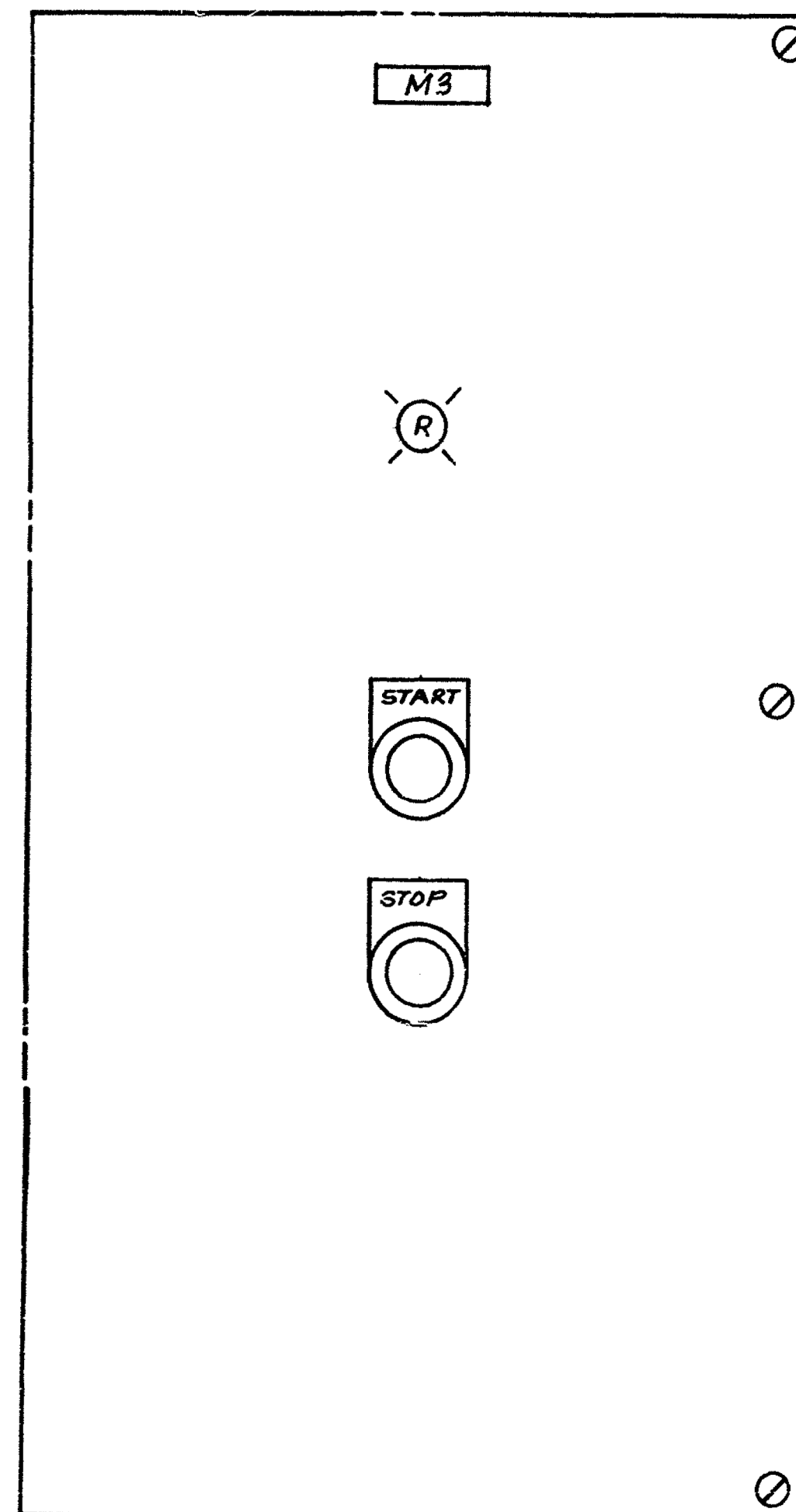
A ALT.	REV. PER RETURNED APPROVED DWG.	1-9-75	FAV
	CHANGE	DATE	BY
OIL TRANSFER PUMP CONTROL LOWER GRANITE LOCK & DAM SNAKE RIVER, OREGON WASHINGTON IDAHO.			
SOLD TO LOWER GRANITE CONTRACTORS ADDRESS PULLMAN, WASH.		P. O. NO. 1246-2964	
INSTALLED BY LOWER GRANITE CONTRACTORS ADDRESS PULLMAN, WASH.		P. O. NO. 1246-2964	
ARCHITECT ENGINEER C.E. - PORTLAND ORE.		APPROVED BY	

ELECTRICAL PRODUCTS

729 EAST TEMPLE STREET • LOS ANGELES, CALIFORNIA 90012

DR. FAV / DATE 7-27-72	SHOP ORDER	DWG. NO.	SHEET	ALT.
CHK'D. D / DATE 8/1/72	25895	E25898-10	10	A
SCALE NOT TO SCALE				

7-688-1009 ISR70-0088-277-011

[illegible]

NOTES:



1. CABINET TO BE NEMA TYPE 12. (14 U.S. GA. STEEL MIN. GALV.).
- △ 2. FINISH - ELECTRO-GALVANIZED
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TUBING W/ FIBERGLASS LINING AS MADE BY FLOY TAG MFG. CO.


1-UNIT REQ'D

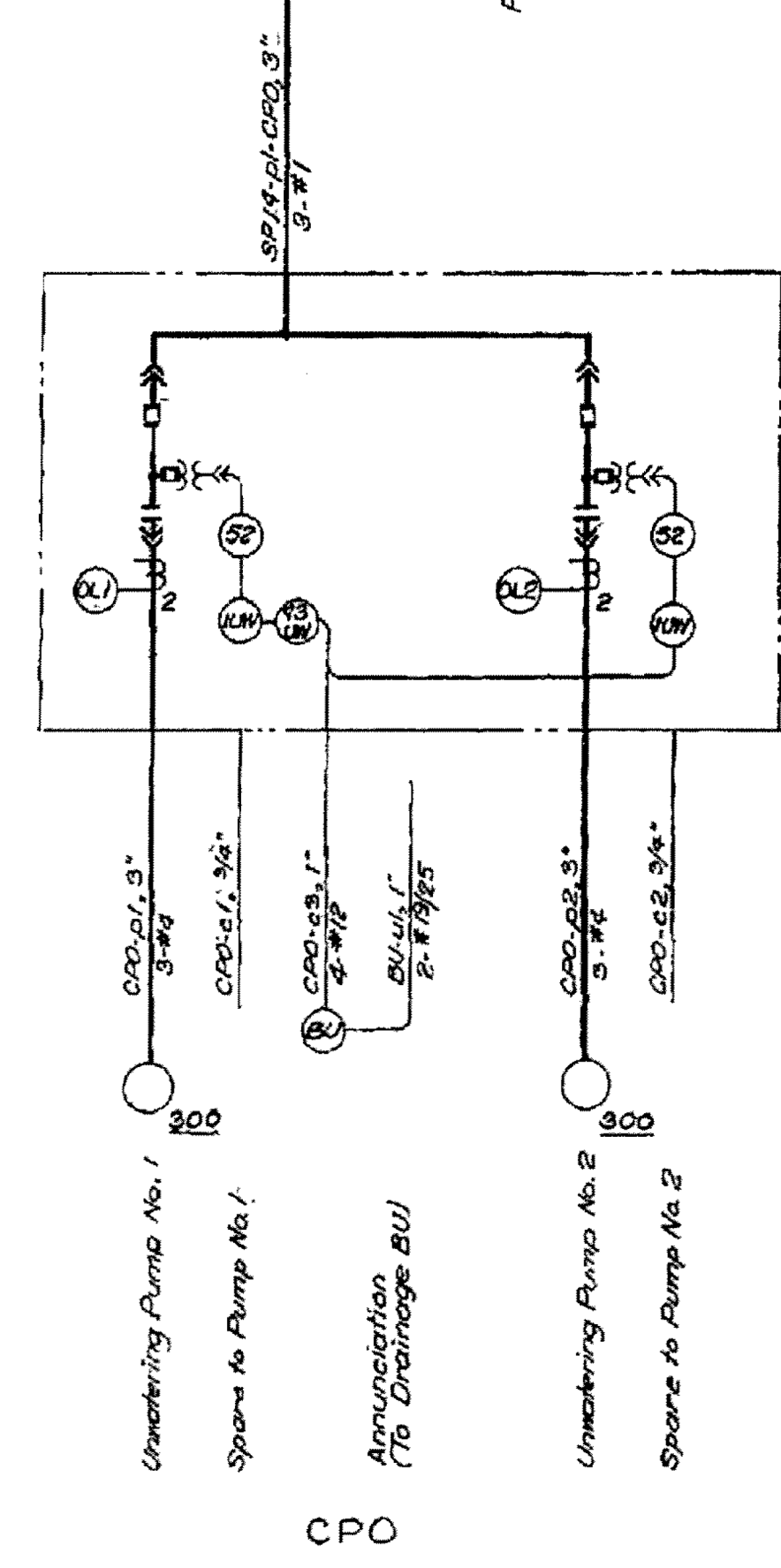
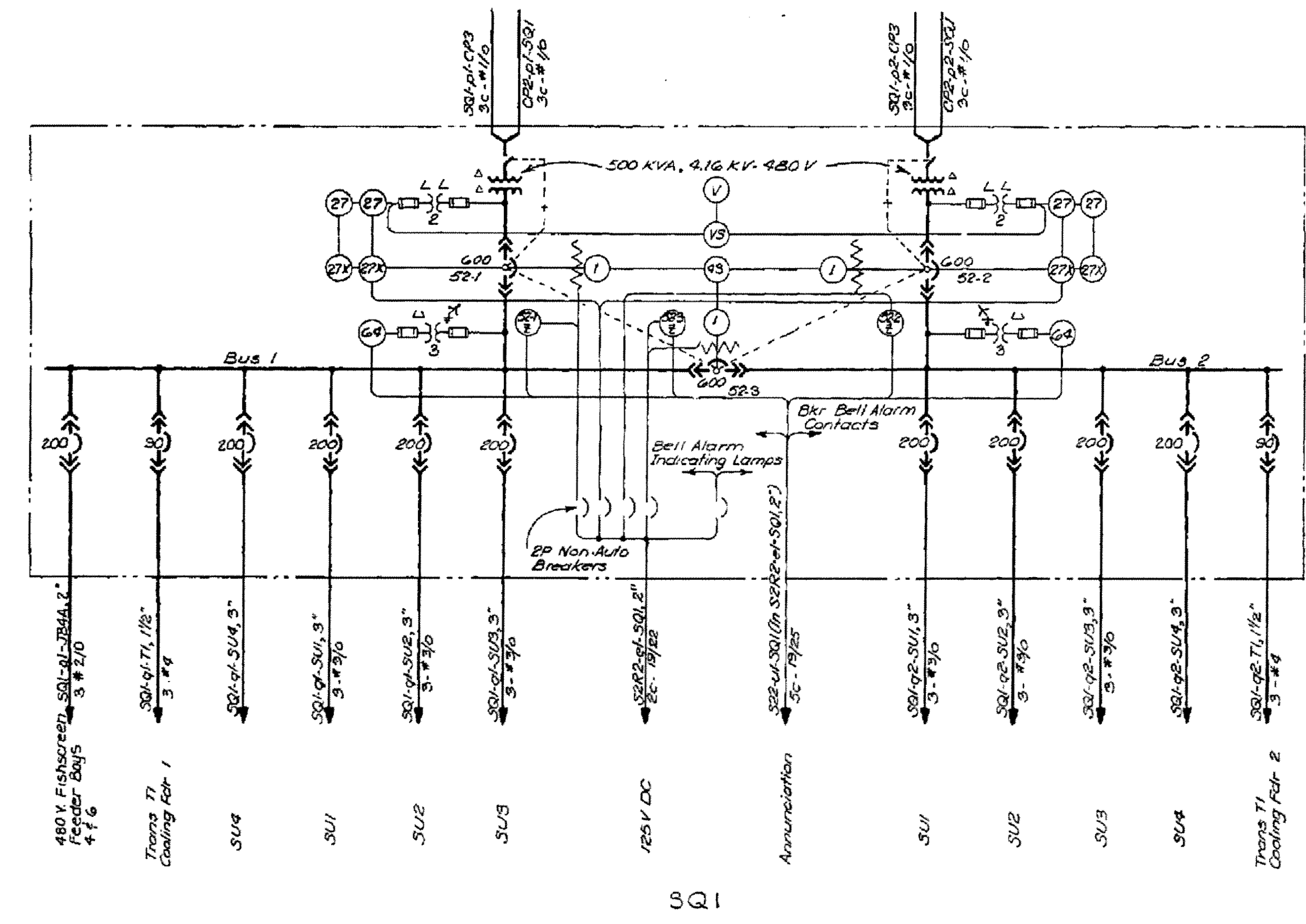
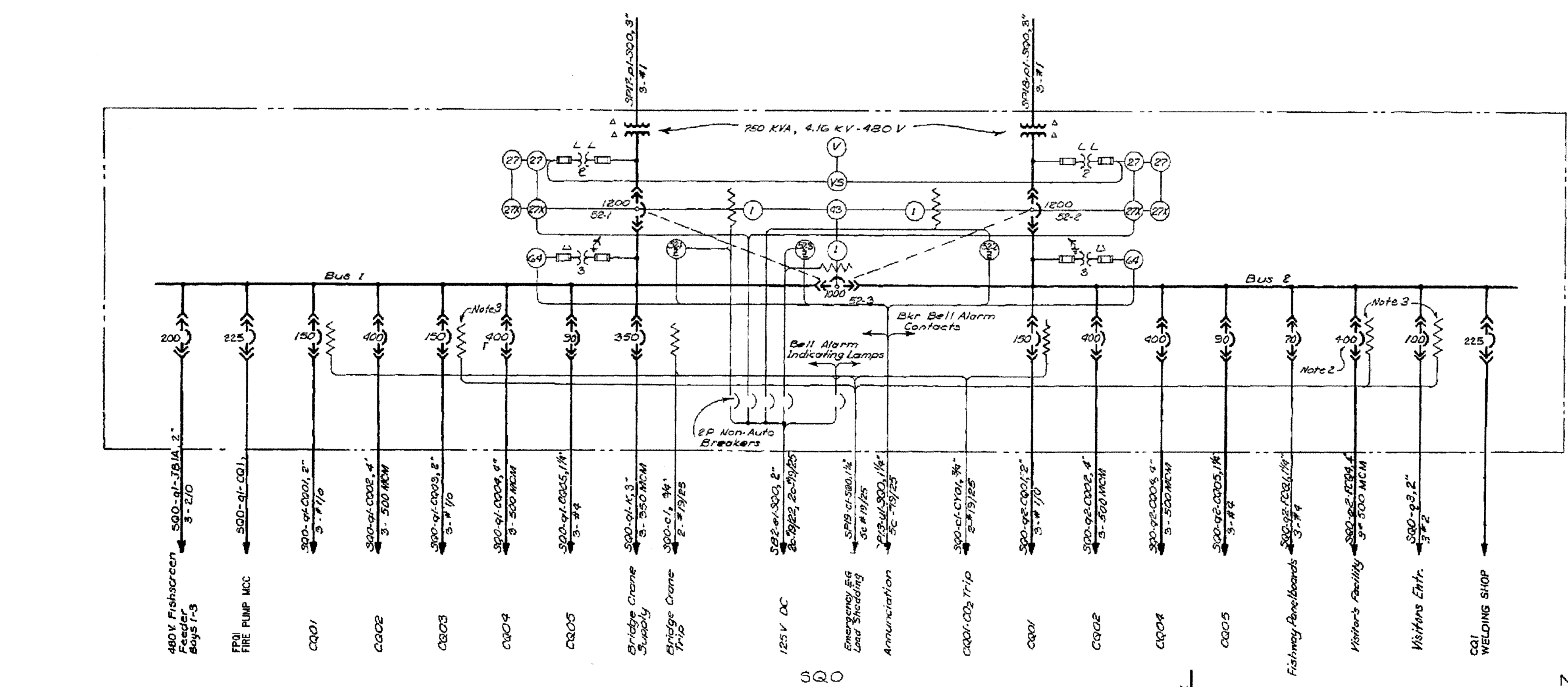
SHOP NOTE :

SHOP INSPECTION REQUIRED.

SHOP INSPECTION REQUIRED.

<p>BID ITEM : 277</p> <p>REF. JOB PLANS GDD-1-6-1024/11 VOL. VII SHT. #16 GDD-1-6-1A8/11 VOL. VIII SHT. #75</p> <p>CUSTOMERS ITEM NO. M16-3 WT. 45 *</p>		<p>CONTRACT NO. DACW68-70-C-0085</p> <p style="text-align: center;">LUBE OIL PUMP CONTROL</p> <p style="text-align: center;">LOWER GRANITE LOCK & DAM SNAKE RIVER, OREGON WASHINGTON IDAHO.</p>	
<p>LOWER GRANITE CONTRACTORS</p> <p>PULLMAN WASH.</p>		<p>ALT. _____ DATE _____ BY _____</p> <p>REV. PER RETURNED APPROVED DWG. _____</p>	
<p>LOWER GRANITE CONTRACTORS</p> <p>PULLMAN, WASH.</p>		<p>P. O. NO. 1246-2964</p>	
<p>LOWER GRANITE CONTRACTORS</p> <p>PULLMAN, WASH.</p>		<p>P. O. NO. 1246-2964</p>	
<p>ARCHITECT _____</p> <p>ENGINEER C.E. - PORTLAND ORE.</p>		<p>APPROVED BY _____</p>	
 <p>ELECTRICAL PRODUCTS</p> <p>729 EAST TEMPLE STREET • LOS ANGELES, CALIFORNIA 90012</p>			
<p>DR. FAS/ DATE 7-28-72</p> <p>CHK'D BY/ DATE 8/2/72</p> <p>SCALE NOT TO SCALE</p>		<p>SHOP ORDER 25898</p> <p>DWG. NO. E25898-11</p>	
<p>SHEET 11</p>		<p>ALT. </p>	

☐ APPROVED AS CORRECTED
☐ RETURNED FOR CORRECTION REVENUE
 SEE COMMENT
 BY: 
 AUTHORIZED REPRESENTATIVE OF THE CONTRACTING OFFICE
 DATE: 8-2-85 JCM

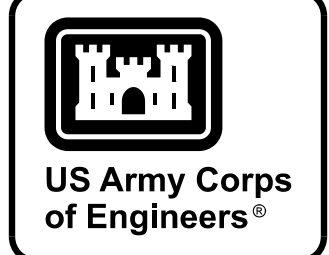


- NOTE
1. For General Notes and Legend see Dwg GDP-1-6-1A01/1.
 2. Replace Visitor's Facility breaker trip unit with one rated at 400 amperes and set at: 30 seconds-1A, long delay; and 850% instantaneous trip (6-12X). Change cable to 500 MCM.
 3. Install shunt trip devices on supply breakers for CQ03, Visitor's Facility and Visitor's Entrance.

AS CONSTRUCTED
HYDRO ELECTRIC DESIGN BRANCH, NPD
DATE: 26 Sept 01 in E.H. Shundahl

DESIGNED BY: E.M.S.	DATE: 26 Sept 01
DRAWN BY: DER	DATE: 26 Sept 01
CHECKED BY: RLD	DATE: 26 Sept 01
APPROVED BY: [Signature]	DATE: 26 Sept 01
U. S. ARMY ENGINEER DIVISION, N. P. PORTLAND OREGON LOWER GRANITE LOCK AND DAM SNAKE RIVER, OREGON, WASHINGTON, & IDAHO POWERHOUSE ONE LINE DIAGRAM SQ0, SQ1 & CPO GDP-1-6-1021/1 SHEET 13	

FOR INFORMATION ONLY

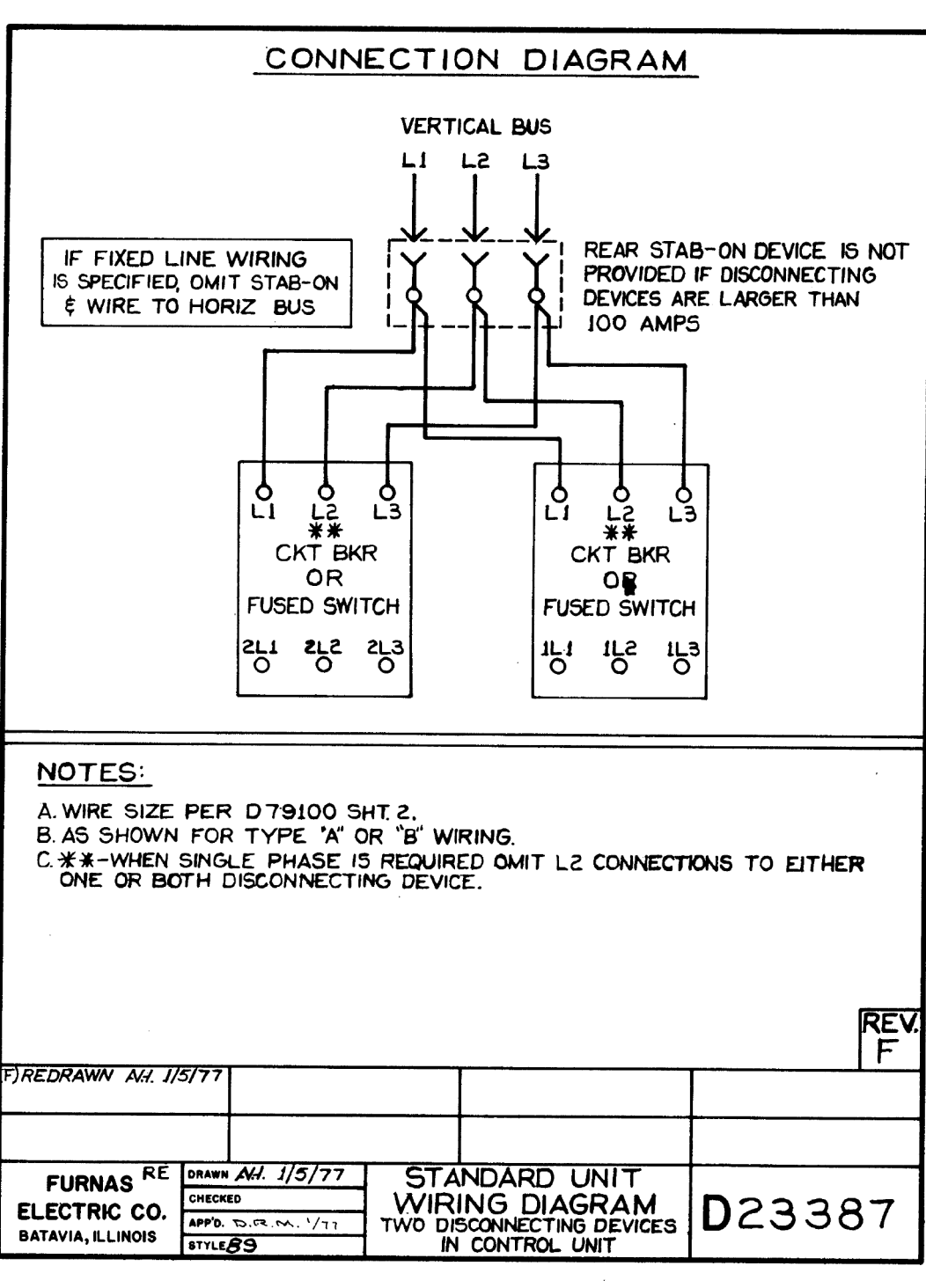
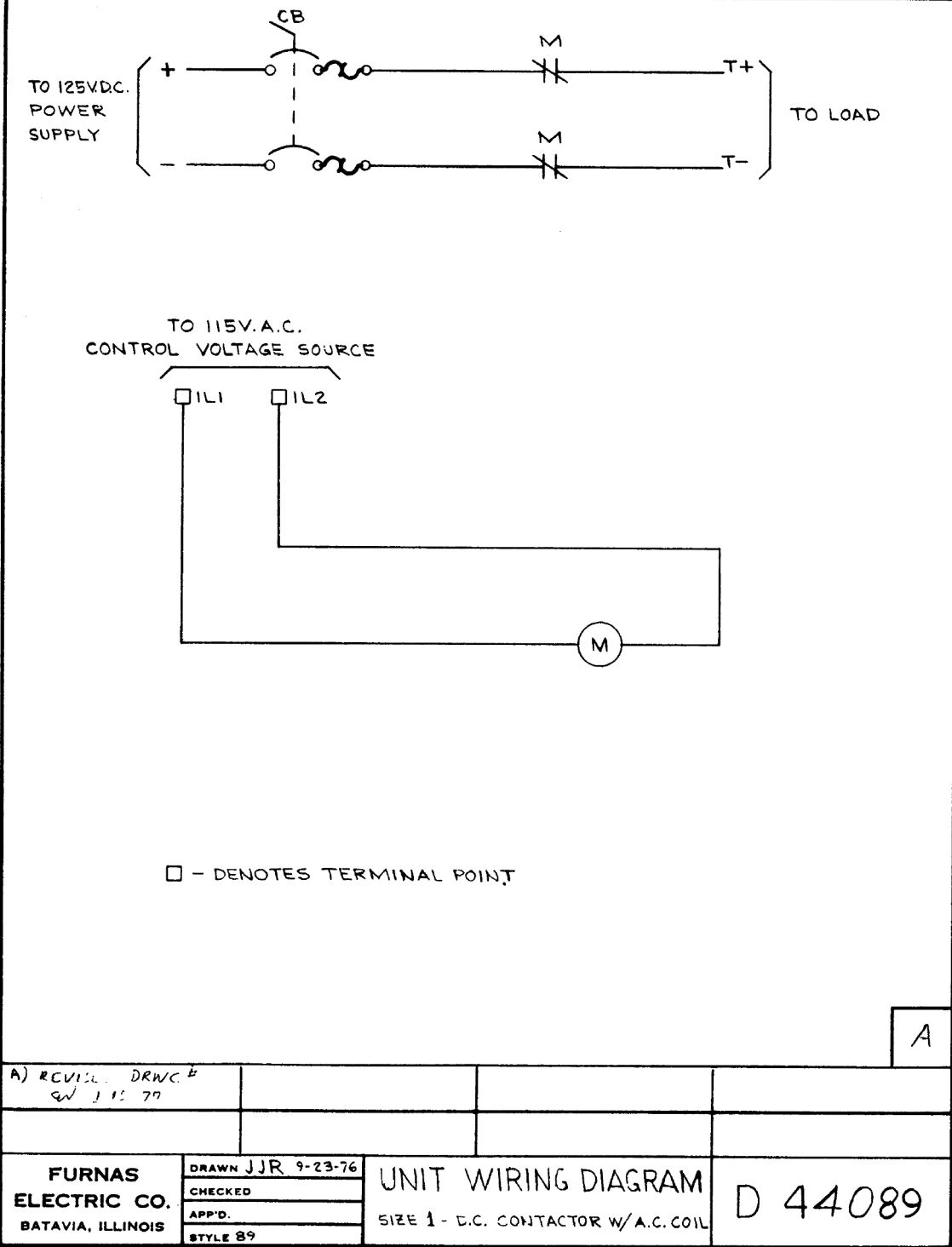
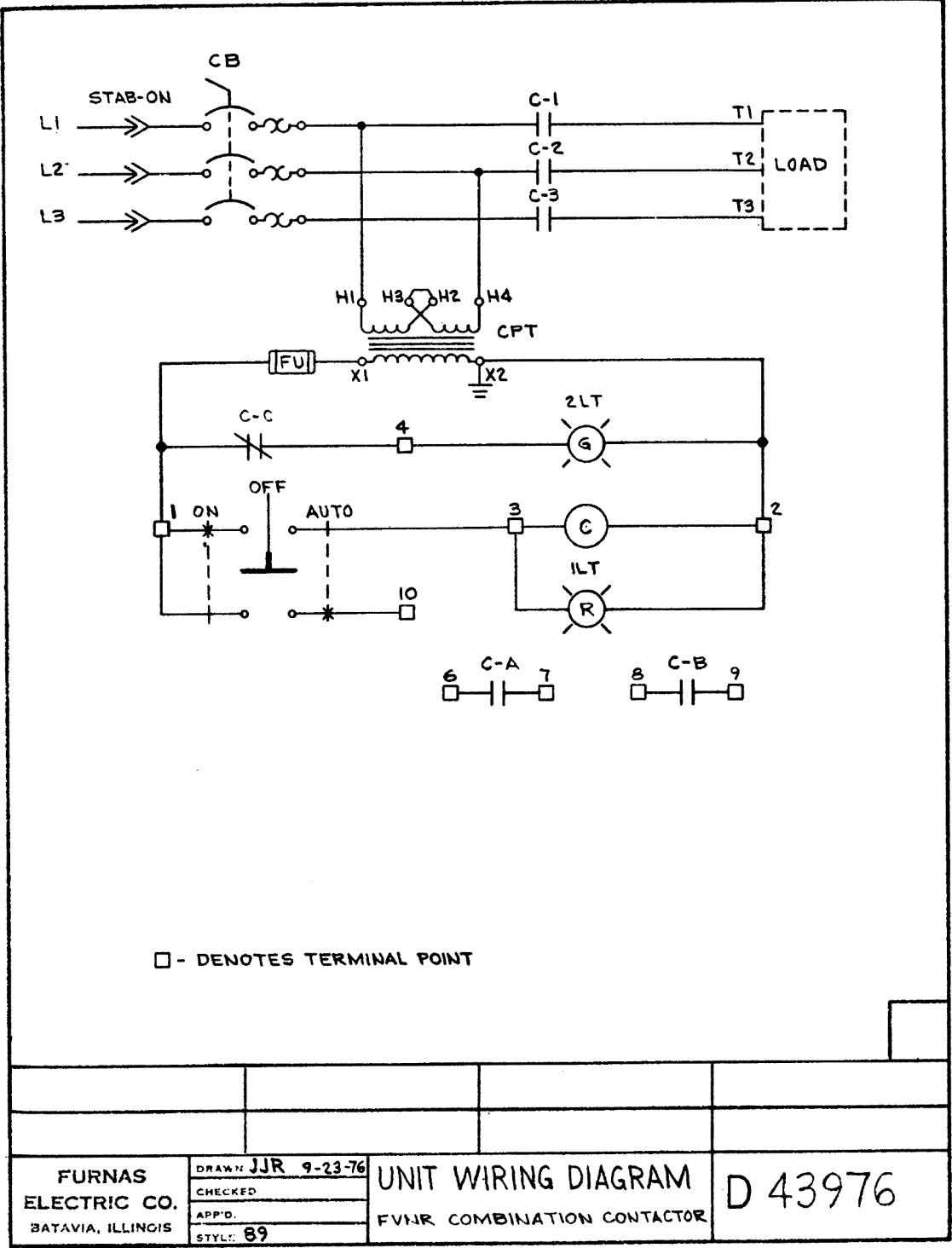
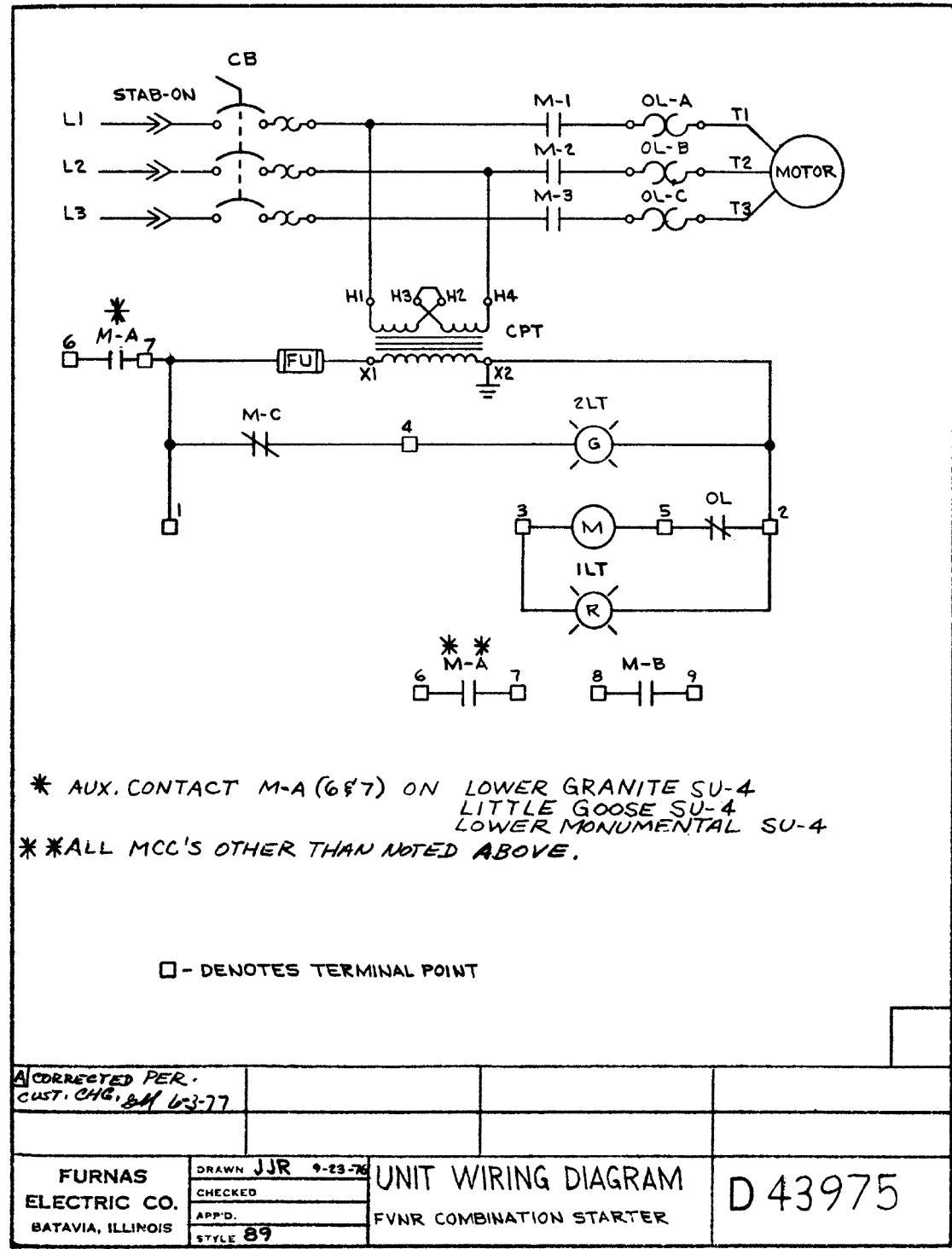


MARK	DESCRIPTION	DATE

DESIGNED BY: U.S. ARMY CORPS OF ENGINEERS WALLA WALLA DISTRICT 201 NORTH 3RD AVENUE SEATTLE, WASHINGTON	ISSUE DATE: AUGUST 2002 SOLICITATION NO.: W91ZCZ0001 CONTRACT NO.: DRAWING NUMBER: FILENAME: R-075.dwg
--	--

LITTLE GOOSE LOCK AND DAM POWERHOUSE DC SYSTEM AND LOW VOLTAGE SWITCHGEAR POWERHOUSE ONE LINE DIAGRAM SQ0, SQ1 & CPO

P
N
M
L
K
J
H
G
F
E
D
C
B
A



FURNAS ELECTRIC COMPANY, BATAVIA, ILLINOIS					
CATALOG NUMBER					
MAGNET COIL RATING					
VOLTS		HERTZ		INSPECTED	
H "Standard Trip" HEATER ELEMENTS FOR MELTING ALLOY RELAYS					
Heaters shown in the table provide a maximum trip rating of 125% of the motor's nameplate amperes, which is suitable for 40° C motors. For all other motors select heater's one code number lower than specified in the table, which gives a maximum trip rating of approximately 115%.		Full Load		Heater	Max. Ret.
		Mo. Amps.		Code	of Prot. Device
		Min.	Max.	No.	Fr. Bkr.
		12.4	13.5	H34	45 30
		13.6	14.3	H35	45 30
		14.6	15.6	H36	50 30
		15.7	17.8	H37	60 30
		17.9	18.8	H38	60 30
		18.9	19.9	H39	60 30
		20.0	22.1	H40	70 30
		22.2	25.5	H41	80 30
		25.6	28.7	H42	90 30
		28.8	33.0	H43	100 30
		33.1	37.0	H44	125 30
		37.1	43.1	H45	125 50
		43.2	46.9	H46	150 100
The tripping current of any heater in a 40° C ambient is 25% greater than the lower value of motor amperes shown in table.					
Starters do not provide protection from short circuits. A protective device should be provided in accordance with the N.E.C. (C.E.C. in Canada) and not exceed the values shown in the table if shown.					
Fu Fuse or inverse time circuit breaker.					
Bkr Instantaneous trip circuit breaker.					
778		D26072-3			

FURNAS ELECTRIC CO.	DRAWN JJR 6/16/76 CHECKED APP'D. STYLE	HEATER TABLE FOR SIZE 2 COMB. & NON COMB. HEATERS WITH HEAT-ALLOY CHAMBER & STD. TRIP HEATERS			
		D 26072-3			

APPROVED
CORPS OF ENGINEERS, U. S. ARMY
NORTH PACIFIC DIVISION
DATE 06 JUN 1978
BY 24 [Signature]
ENGINEER (ELECTRIC DESIGN BRANCH)

REV.		DATE	DESCRIPTION
AS BUILT			
FURNAS ELECTRIC CO. BATAVIA, ILLINOIS			
CUSTOMER QUEEN PUMP CO., CONTROL LOWER SNAKE RIVER PROJECT CENTER FOR LITTLE GOOSE SUB			
CUSTOMER ID. DACW68-76-C-0247			
FURNAS ID. 89FD0253-03 SHT. 2			
DRAWN BY GH		DATE 4/15/76	

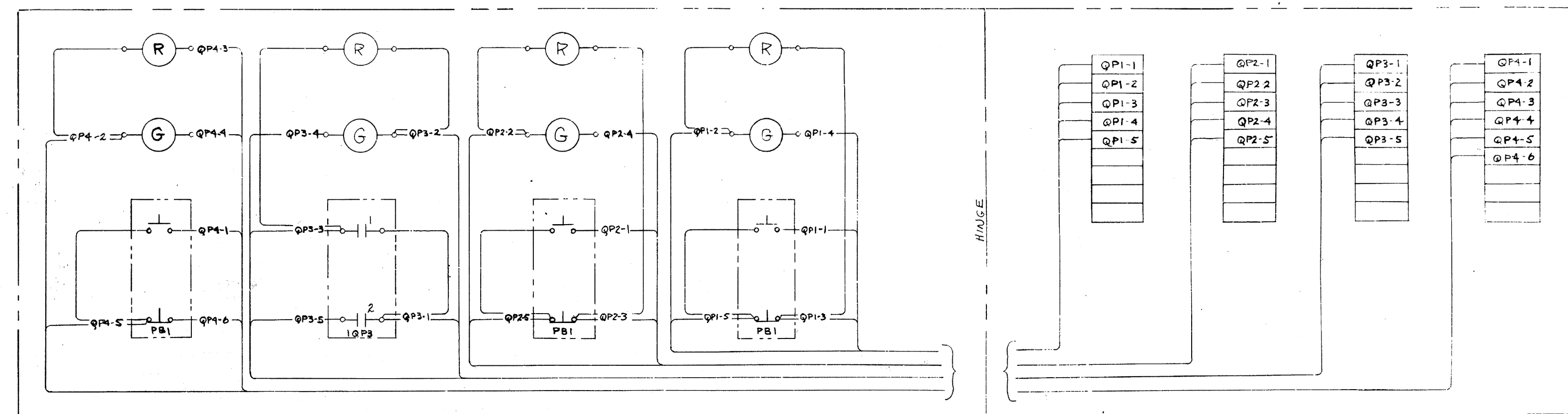
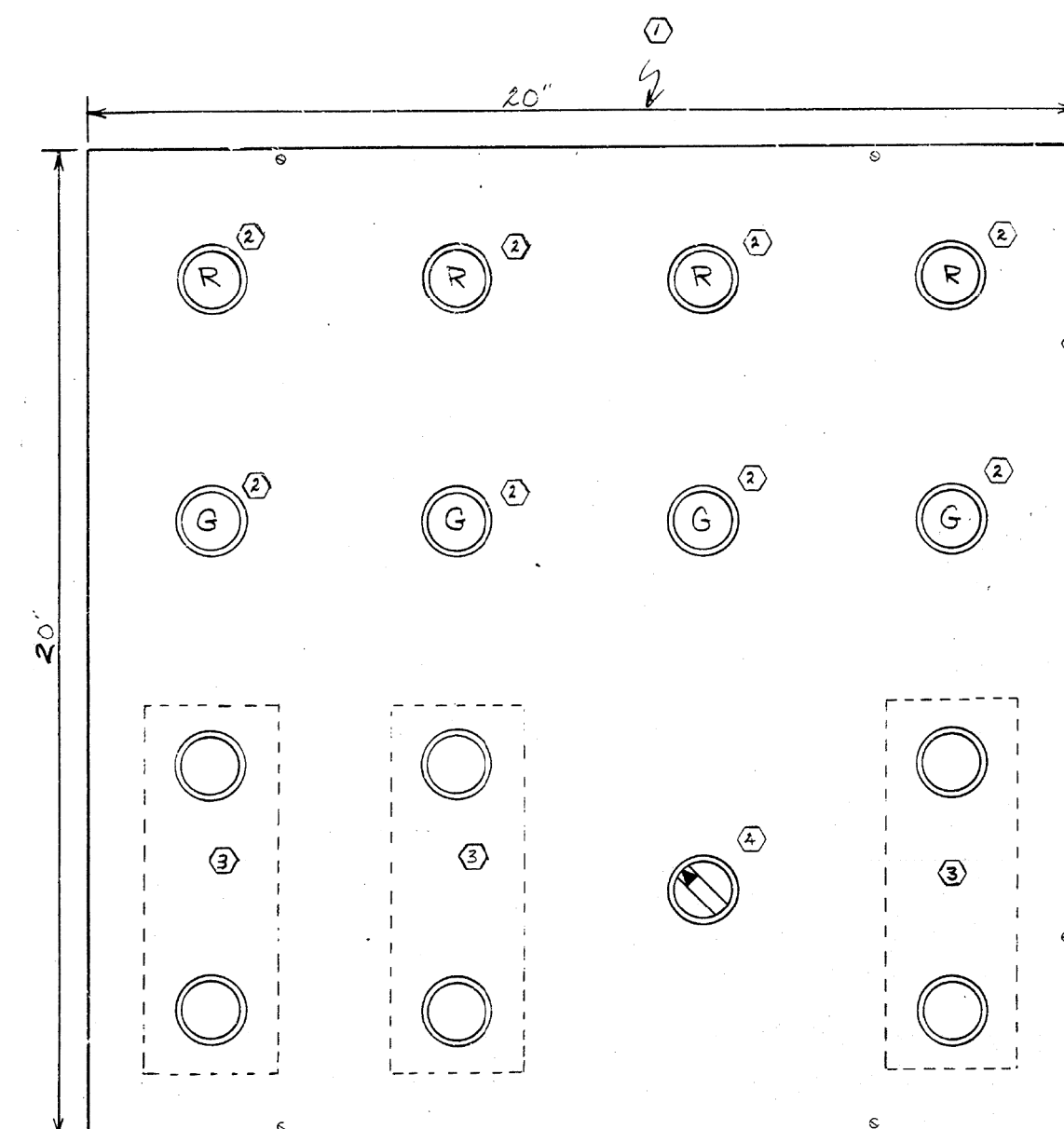
US Army Corps of Engineers®

ISSUE DATE: AUGUST 2022	SOLICITATION NO.: W91ZEEZ0001	CONTRACT NO.:	DRAWING NUMBER:
DESIGNED BY:	DRAWN BY:	CHECKED BY:	SUBMITTED BY:
U.S. ARMY CORPS OF ENGINEERS WALLA WALLA DISTRICT 201 NORTH 3RD AVENUE SEATTLE, WASHINGTON			
FILENAME: R-076.dgn	SIZE: ANSI D	DESCRIPTION	

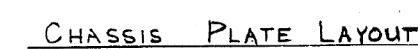
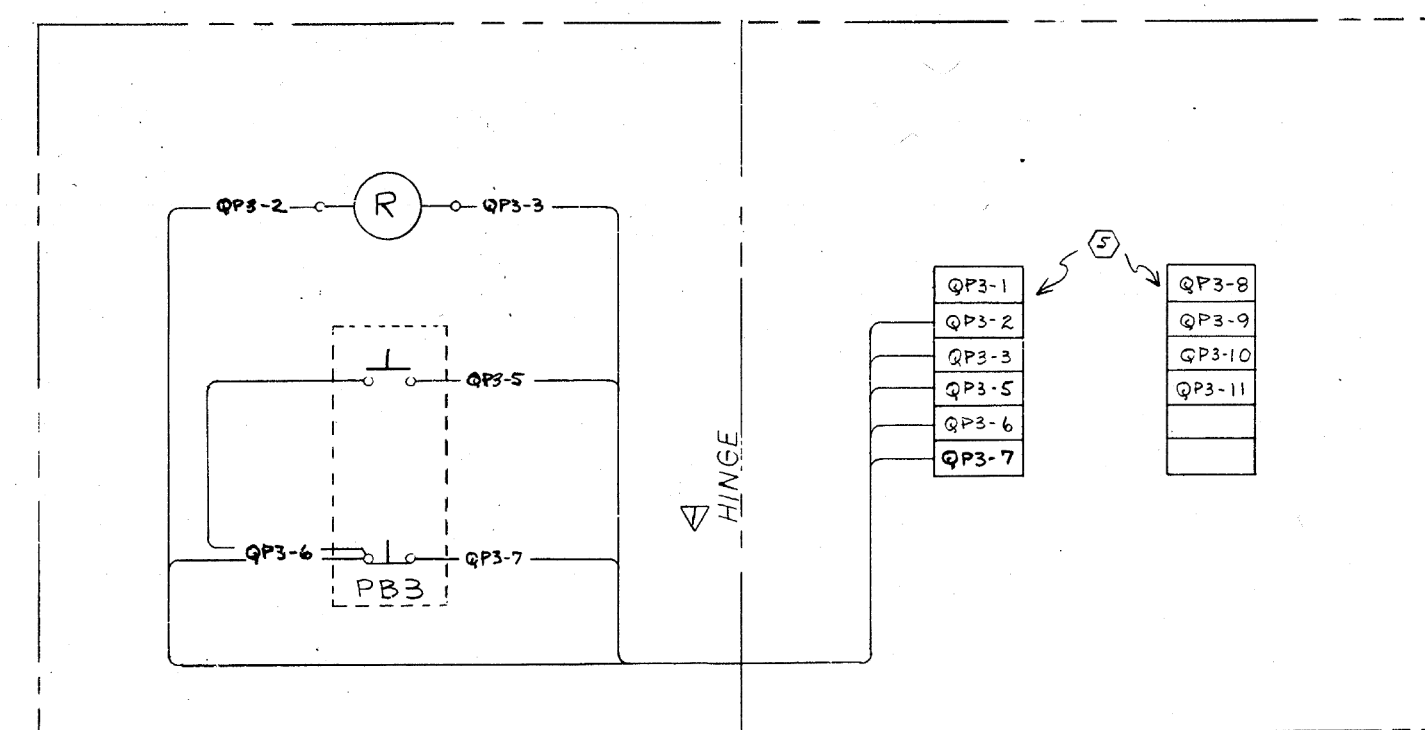
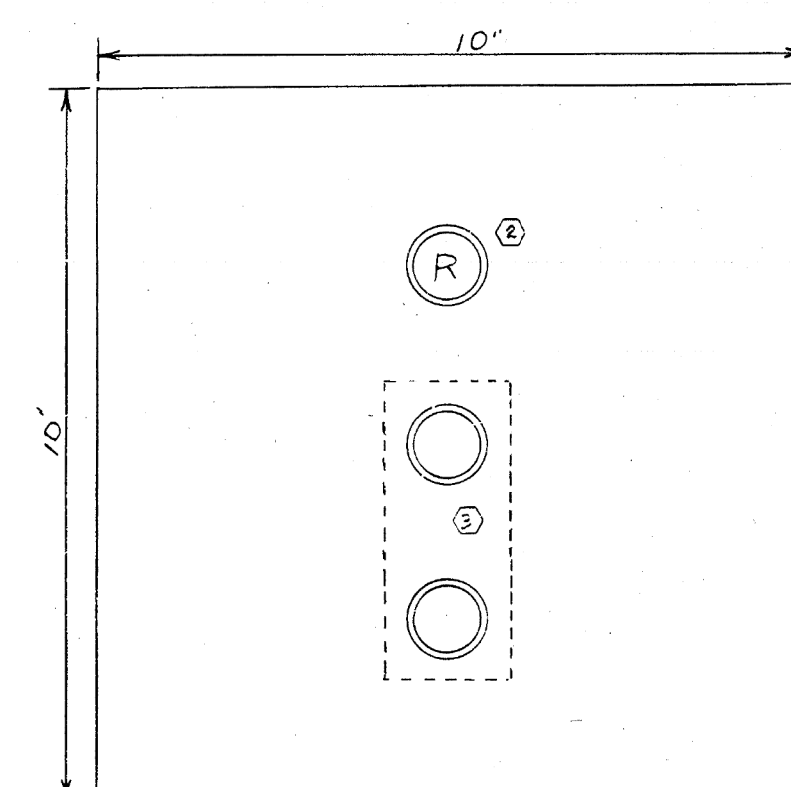
LITTLE GOOSE LOCK AND DAM
POWERHOUSE
DC SYSTEM AND LOW VOLTAGE SWITCHGEAR
WIRING DIAGRAMS

SHEET ID
R-076

FINAL



~~Oil Transfer Pump Control~~
Oil Transfer Pump Control



NO	ITEM	MANUFACTURER AND DIScription
1.	ENCLOSURE	OF GALV. SHEET STEEL (SEE DRAWING)
2.	INT. LIGHTS	OF OTF INDICATING LIGHTS W/ LENS
3.	PUSHBUTTON	OF OTZBI PUSHBUTTON STATIONS
4.	SEL. SW.	OF OTS6 3 POS SEL. SWITCH
5.	TERMINALS	40 TERMINAL BLOCKS
▽	WIRE	177 WIRE/CABLE CO TYPE SIS (SEE NOTE 3)
▽	WIRE	RING-TONGUE TYPE STA-KOLUGS.

Lube Oil	Pump	Control
Lube Oil	Pump	Control

NOTES: 1. NAMEPLATES AS PER NAMEPLATE
SCHEDULE ON DRAWING
LGP-1.1-6-1AB/7 SHEET 73
AS SPECIFIED.

2. SELECTOR SWITCH ESCUTCHEON PLATES AS PER DWG. LPG-11-6-1024/1 SA 16

3. CAT. NO. W-6124 110.14 AWG 7 STRAND FOR CONTROL WIRE - CAT. NO. W-6174, 91 STRAND FOR HINGE WIRE - MEETING THE REQUIREMENTS OF NEMA STANDARD WC3

CONTRACT NO. DACW68-68-C-0080		REVISIONS ✓ 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100	
OFFICIAL USE ONLY		REVISED PER CORPS OF ENGRS TGA	
APPROVAL		BID ITEM NO. 26	
Subject to conformity with plans and specifications, correction of errors or omissions, and to fulfillment of any required tests. Approval does not cover data dimensions, or accessibility for ascending and fastening.		WATERWORKS EQUIPMENT CO. SALT LAKE CITY, UTAH	
OFFICE OF RESIDENT ENGINEER LITTLE GOOSE LOCK AND DAM		LITTLE GOOSE LOCK AND DAM CONTROL CABINETS	
J. C. [Signature]		OIL TRANSFER PUMP & LUBE OIL PUMP	
Date: FEB 19/71	Date 9-18-68	Drawn by 1/1	Checked by Approved 8FF-020-0

[illegible]

DESIGNED BY:	ISSUE DATE:
DRAWN BY:	AUGUST 2022
CHECKED BY:	SOLICITATION NO.:
	W912EF22R0001
	CONTRACT NO.:
SUBMITTED BY:	DRAWING NUMBER:
SIZE:	FILENAME:


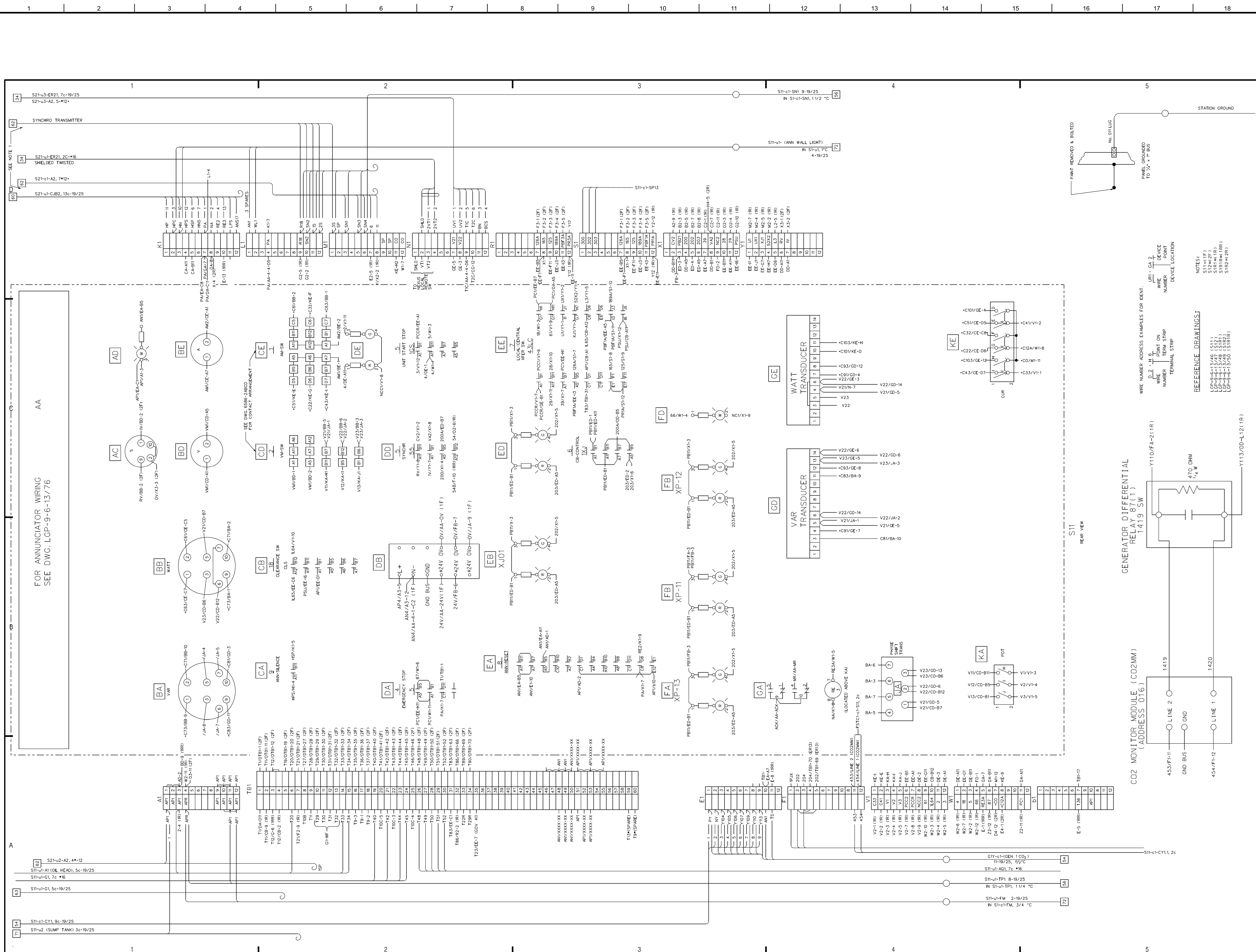
U. S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
201 NORTH 3RD AVENUE
SEATTLE, WASHINGTON

LITTLE GOOSE LOCK AND DAM
POWERHOUSE
DC SYSTEM AND LOW VOLTAGE SWITCHGEAR
CONTROL CABINETS

SHEET ID
R-077

SHEET ID

R-078



US Army Corps
of Engineers
Walla Walla District

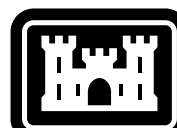
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U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS WALLA WALLA, WASHINGTON	DESIGNED BY:	DATE:
	DRAWN BY:	CHECKED BY:
CORE MASTER	SUBMITTED BY:	CONTRACT NO.
	FILE NO.:	

LITTLE GOOSE LOCK AND DAM
SNAKE RIVER, OREGON, WASHINGTON AND IDAHO
GENERATOR UNITS 1 THROUGH 6
WIRING DIAGRAM
GENERATOR SWITCHBOARD
S11

Sheet number:

Sheet 1 of 5

US Army Corps
of Engineers®

DATE

MARK DESCRIPTION

ISSUE DATE:
AUGUST 2002

SOLICITATION NO.:

CONTRACT NO.:

DRAWING NUMBER:

DESIGNED BY:

DRAWN BY:

CHECKED BY:

SUBMITTED BY:

FILE NAME:

SIZE:

ANSI:

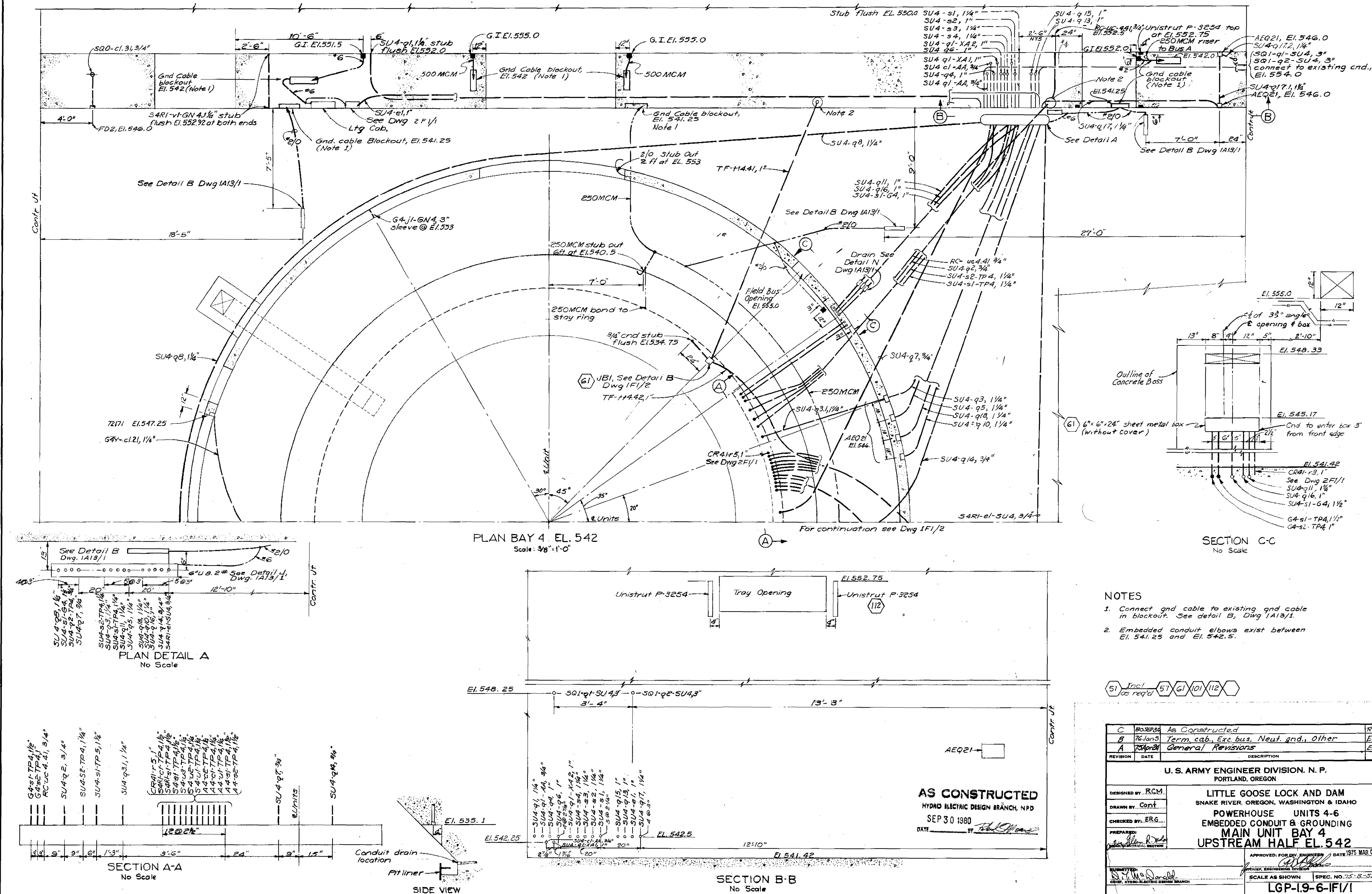
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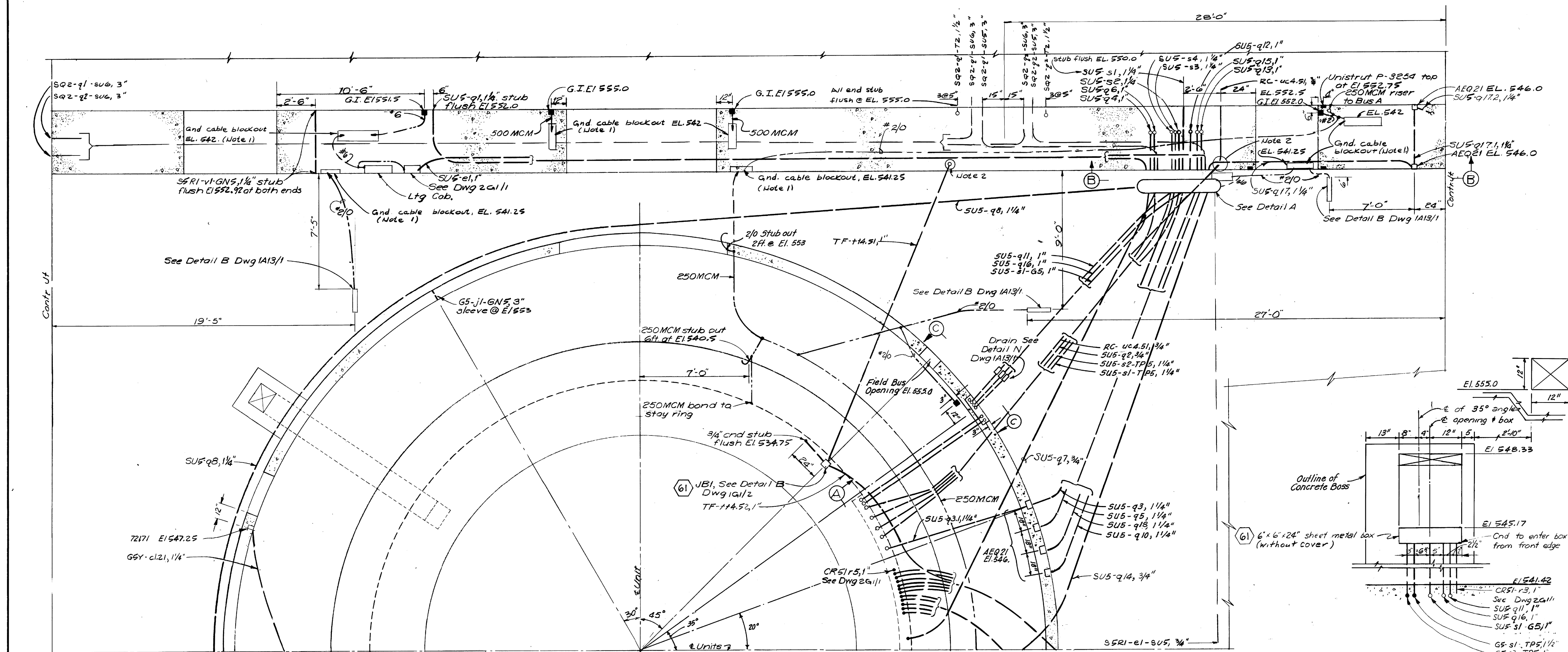
U.S. ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
201 NORTH 3RD AVENUE
SEATTLE, WASHINGTONLITTLE GOOSE LOCK AND DAM
POWERHOUSE
DC SYSTEM AND LOW VOLTAGE SWITCHGEARPOWERHOUSE UNITS 4-6
EMBEDDED CONDUIT & GROUNDING MAIN UNIT BAY 4
UPSTREAM HALF EL 542

SHEET ID

R-079

FINAL



US Army Corps
of Engineers®PLAN BAY 5 EL 542
Scale: 3/8\"/>SECTION C-C
No Scale

NOTES

1. Connect gnd. cable to existing gnd cable in blackout. See Detail B, Dwg 1A13/1.
2. Embedded conduit elbows exist between EL 541.25 and EL 542.5.

AS CONSTRUCTED

HYDRO ELECTRIC DESIGN BRANCH, NPD

DATE SEP 30 1980 BY *Feld Moore*

51 Incl as req'd 57 61 101 112

REVISION	DATE	DESCRIPTION	BY
C	ROSEPH	As Constructed	RCM
B	76 Jan 5	Term. cab. Exc. bus. Neut. gnd., SU5-q18	EMS
A	76 Apr 24	General Revisions	EMS

DESIGNED BY: RCM	
DRAWN BY: Cont	
CHECKED BY: E.R.G.	
PREPARED BY: <i>John R. W.</i>	
SUBMITTED BY: <i>John R. W.</i>	
U. S. ARMY ENGINEER DIVISION, N. P. PORTLAND, OREGON	
LITTLE GOOSE LOCK AND DAM SNAKE RIVER, OREGON, WASHINGTON & IDAHO POWERHOUSE UNITS 4-6 EMBEDDED CONDUIT & GROUNDING MAIN UNIT BAY 5 UPSTREAM HALF EL 542	
APPROVED: <i>John R. W.</i> DATE 1975 MAR 9 T	
SCALE AS SHOWN	SPEC. NO. 7.5-B-55
SHEET 279	

75-C-162

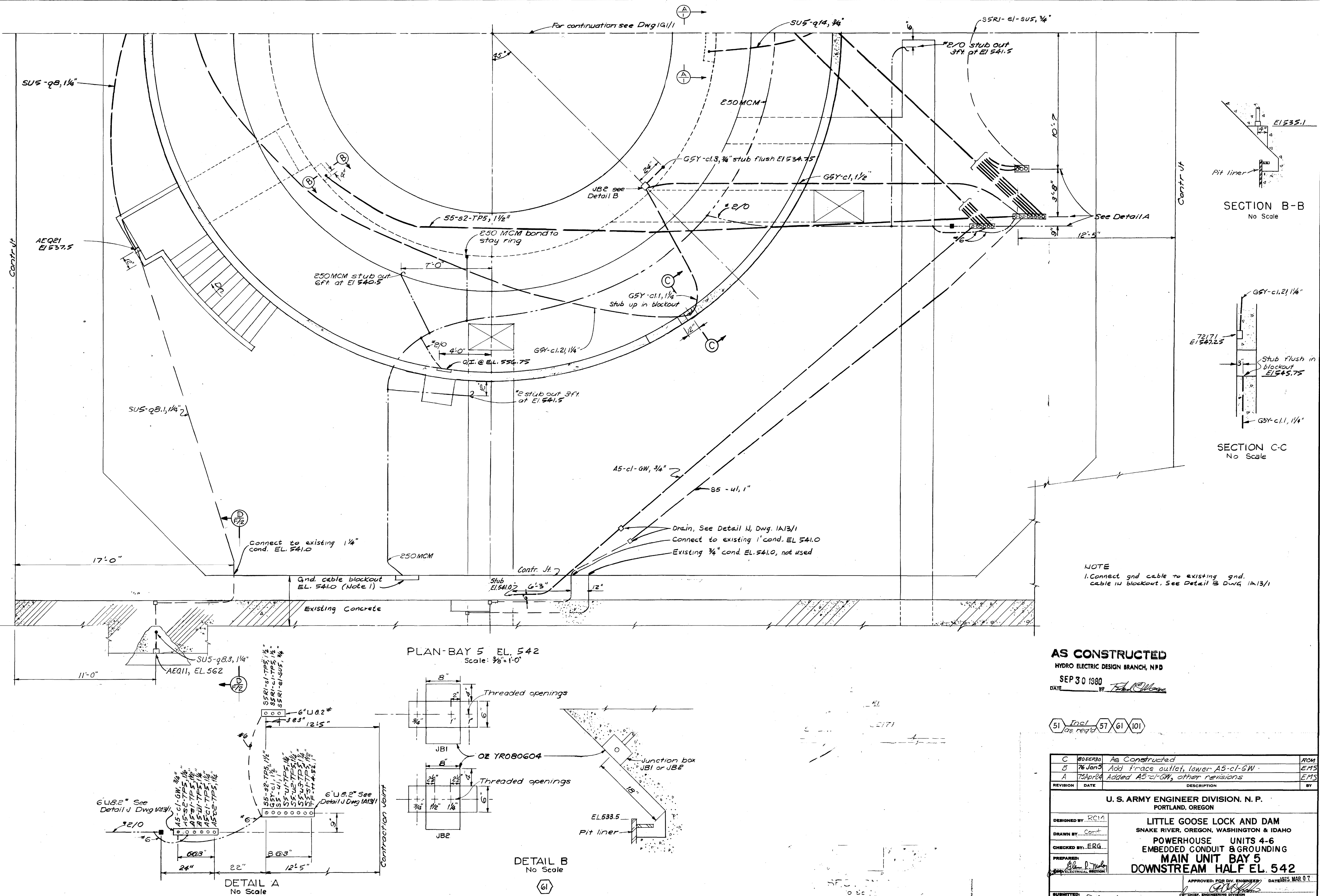
VOL. NO. I

SHEET ID

R-080

FINAL

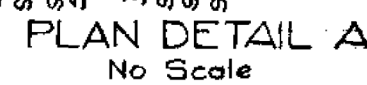
U. S. ARMY



VOL. NO. I



PLAN BAY 6 EL 542
Scale: $\frac{3}{8}" = 1'-0"$



1. Connect gnd cable to existing gnd cable in blockout. See Detail B, Dwg 1A13/1
2. Embedded conduit elbows exist between EL. 541.25 and EL. 542.5

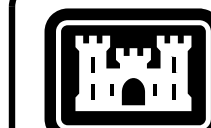
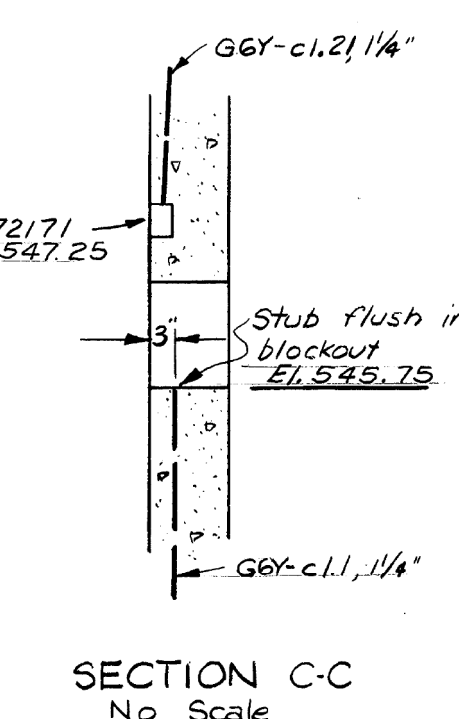
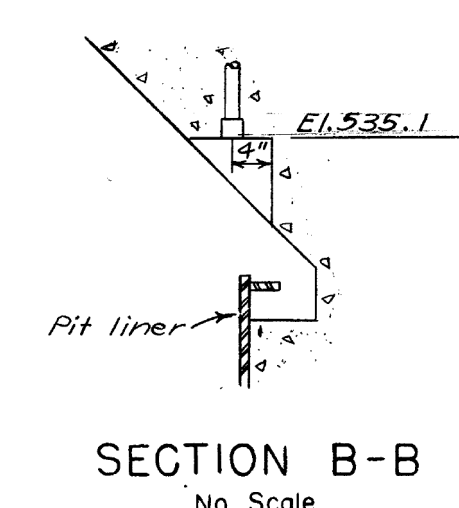
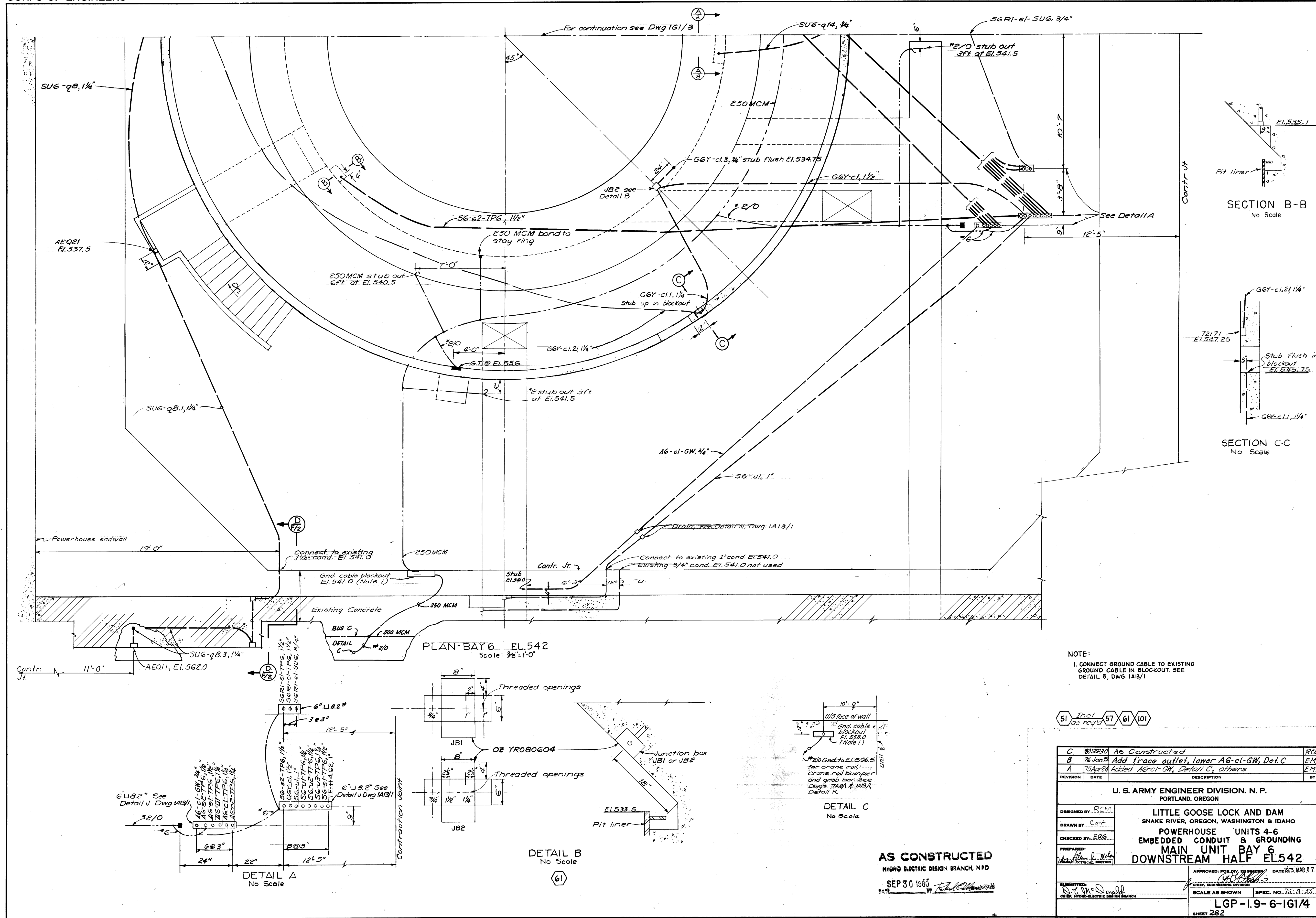
51	Incl as req'd	57	61	101	112
----	------------------	----	----	-----	-----

C	3038230	As Constructed	RE
B	76 Jan 3	Term, cab, Exc. bus, Neut. gnd., XJ6-al-SX6	EN
A	75 Apr 24	General Revisions	EN
REVISION	DATE	DESCRIPTION	B

**U. S. ARMY ENGINEER DIVISION. N. P.
PORTLAND, OREGON**

DESIGNED BY: <u>RCM</u>	<p align="center">LITTLE GOOSE LOCK AND DAM SNAKE RIVER, OREGON, WASHINGTON & IDAHO POWERHOUSE UNITS 4-6 EMBEDDED CONDUIT & GROUNDING MAIN UNIT BAY 6 UPSTREAM HALF EL. 542</p>
DRAWN BY: <u>Cont</u>	
CHECKED BY: <u>ERG</u>	
PREPARED BY: <u>[Signature]</u> <u>Chief, Electrical Section</u>	

SUBMITTED <u>[Signature]</u> CHIEF, ELECTRICAL SECTION	APPROVED: <u>[Signature]</u> <u>FOR DIV. ENGINEER</u> CHIEF, ENGINEERING DIVISION SCALE AS SHOWN SPEC. NO. 75-B-53 LGP-19-6-161/3 SHEET 281	DATE: 1975 MAR 6
--	---	------------------

US Army Corps
of Engineers®

NOTE:
1. CONNECT GROUND CABLE TO EXISTING
GROUND CABLE IN BLOCKOUT. SEE
DETAIL B, DWG. 1A13/1.

51 Incl
as req'd 57 61 101

C	As Constructed	RCM
B	16 Jan 55 Add trace outlet, lower AG-cl-GW, Det. C	EMS
A	15 Apr 54 Added AG-cl-GW, Detail C, others	EMS
REVISION	DATE	DESCRIPTION
U. S. ARMY ENGINEER DIVISION. N. P. PORTLAND, OREGON		
DESIGNED BY	RCM	
DRAWN BY	Cont	
CHECKED BY	ERG	
PREPARED BY	John P. Miller	
SUBMITTED BY	John P. Miller	
CHIEF, HYDRO-ELECTRIC DESIGN BRANCH		
LITTLE GOOSE LOCK AND DAM SNAKE RIVER, OREGON, WASHINGTON & IDAHO POWERHOUSE UNITS 4-6 EMBEDDED CONDUIT & GROUNDING MAIN UNIT BAY 6 DOWNSTREAM HALF EL 542		
APPROVED FOR BY	ENGINEER	DATE 15 MAR 57
SCALE AS SHOWN	SPEC. NO. 15-B-55	
LGP-1.9-6-1G1/4		
SHEET 282		

AS CONSTRUCTED
HYDRO-ELECTRIC DESIGN BRANCH, NPD
SEP 30 1965
DATE BY *John P. Miller*



HYDRO ELECTRIC DESIGN BRANCH, NPD

DATE 1971 SEP 7 BY

B	16 SEP 29	AS-BUILT PER PROJECT PERSONNEL	CTM
A	69 OCT 9	DELETED EXCITATION CIRCUIT SU1-010. 1 1/2"	JRK
REVISION	DATE	DESCRIPTION	BY
<p align="center">U.S. ARMY ENGINEERING DIVISION, N.P. PORTLAND, OREGON</p>			
DESIGNED BY...BHR		LITTLE GOOSE LOCK AND DAM	
DRAWN BY...DFR		SNAKE RIVER, OREGON, WASHINGTON & IDAHO	
CHECKED BY...DBS		POWERHOUSE	
PREPARED BY		ONE LINE DIAGRAM	
HEAD, ELECTRICAL SECTION		SU1 & CP1	
SUBMITTED BY		APPROVED FOR CIV. ENGINEER	DATE 25 JAN. 68
CHIEF, HYDRO-ELECTRIC DESIGN BRANCH		CHIEF, ENGINEERING DIVISION	
INV. NO. DACW66-68-B-0029		SCALE AS SHOWN	SPEC. NO.
		LGP-1.1-6-1E21/1	
		SHEET 18	
		SCALE \$	USER NAME \$

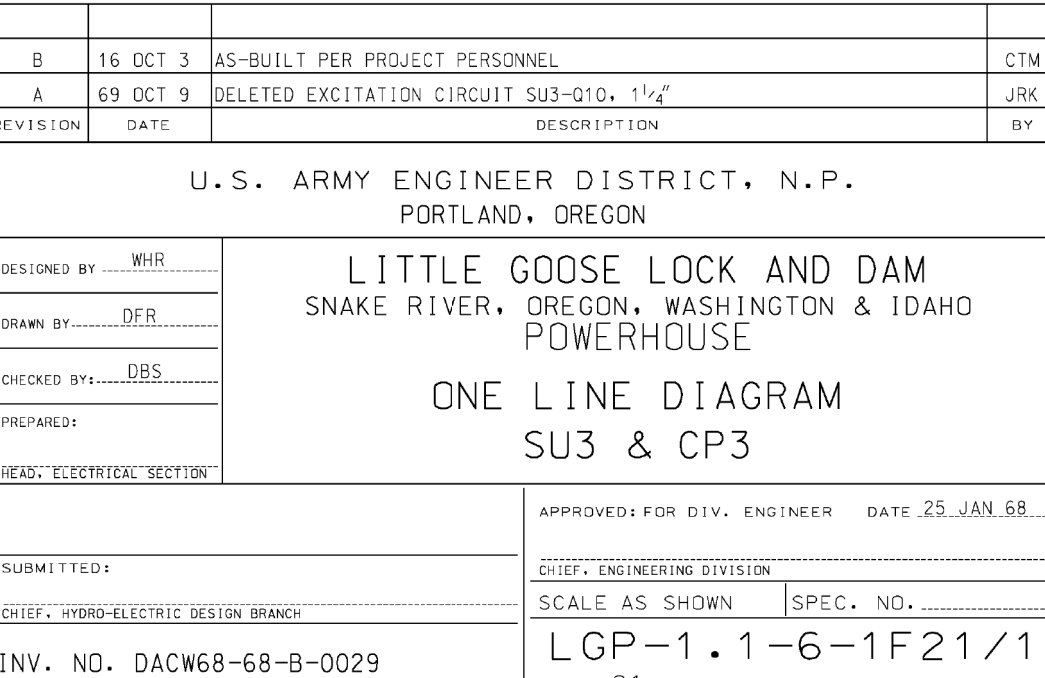
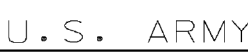
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U.S. ARMY CORPS OF ENGINEERS WALLA WALLA DISTRICT 201 NORTH 3RD AVENUE SEATTLE, WASHINGTON	DESIGNED BY:		ISSUE DATE:
	DRAWN BY:		AUGUST 2022
	CHECKED BY:		DRAWING NO.: W912E22R00031
	SUBMITTED BY:		CONTRACT NO.:
SIZE:	FILENAME:	DRAWING NUMBER:	
	R-085.dgn		

LITTLE GOOSE LOCK AND DAM
POWERHOUSE
DC SYSTEM AND LOW VOLTAGE SWITCHGEAR
POWERHOUSE
ONE LINE DIAGRAM
SU1 & CP1

SHEET ID

R-085

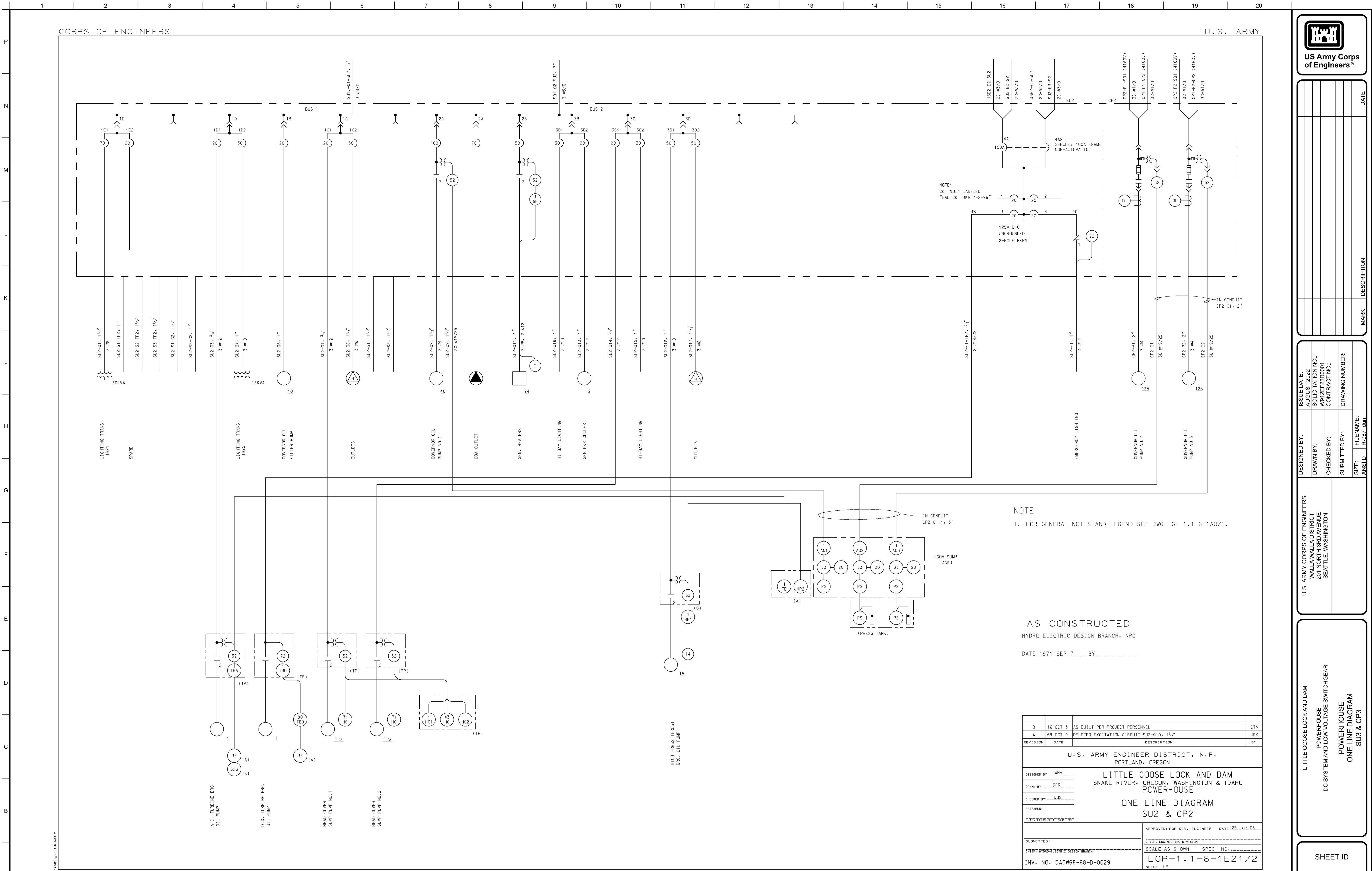


POWERHOUSE
DC SYSTEM AND LOW VOLTAGE SWITCHGEAR

POWERHOUSE
ONE LINE DIAGRAM
SU3 & CP3

R-086

FINAL

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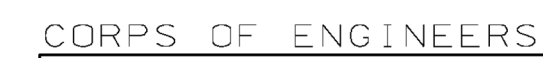
DESIGNED BY:	U.S. ARMY CORPS OF ENGINEERS WALLA WALLA DISTRICT 201 NORTH 3RD AVENUE SEATTLE, WASHINGTON	DESIGNED: 2022 AUGUST 2022
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CHECKED BY:		CONTRACT NO.: W912EE22R0001
SUBMITTED BY:		DRAWING NUMBER:
SIZE:	FILENAME: R-0387.dgn	

POWERHOUSE
DC SYSTEM AND LOW VOLTAGE SWITCHGEAR

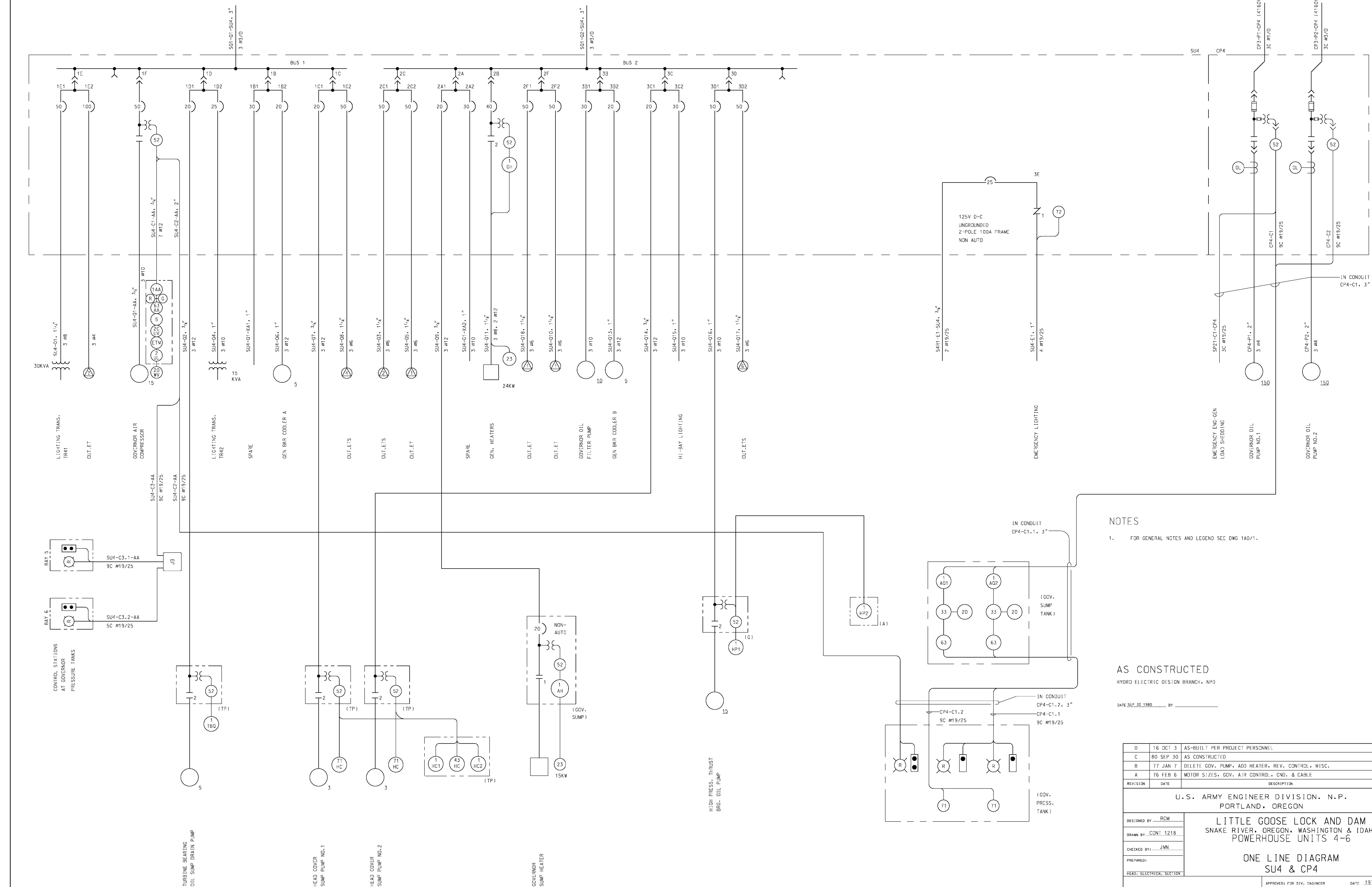
POWERHOUSE
ONE LINE DIAGRAM
SU3 & CP3

SHEET ID

R-087



U.S. ARMY



NOTES

1. FOR GENERAL NOTES AND LEGEND SEE DWG 1A0/1.

AS CONSTRUCTED

HYDRO ELECTRIC DESIGN BRANCH, NPD

DATE SEP 30 1980 BY _____

D	16 OCT 3	AS-BUILT PER PROJECT PERSONNEL	CTM
C	80 SEP 30	AS CONSTRUCTED	RCM
B	77 JAN 7	DELETE GOV. PUMP, ADD HEATER, REV. CONTROL, MISC.	EMS
A	76 FEB 6	MOTOR SIZES, GOV. AIR CONTROL, CND. & CABLE	FMS
REVISION	DATE	DESCRIPTION	BY

U.S. ARMY ENGINEER DIVISION. N.P.
PORTLAND, OREGON

LITTLE GOOSE LOCK AND DAM
SNAKE RIVER, OREGON, WASHINGTON & IDAHO
POWERHOUSE UNITS 4-6

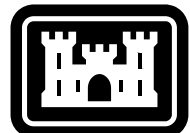
ONE LINE DIAGRAM
SU4 & CP4

APPROVED: FOR DIV. ENGINEER DATE 1975 MAR 07

[illegible]

SCALE AS SHOWN	SPEC. NO. 75-B-55
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LGP-1.9-6-1F21/1



**US Army Corps
of Engineers®**

[illegible]

DESIGNED BY:	ISSUE DATE: AUGUST 2022
DRAWN BY:	SOLICITATION NO.: W912EF22R0001
CHECKED BY:	CONTRACT NO.:
SUBMITTED BY:	DRAWING NUMBER:
SIZE:	FILENAME:
ANSI/D	R-088.dwg

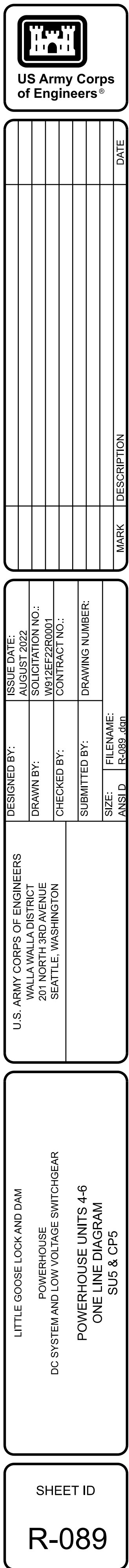
ARMY CORPS OF ENGINEERS
WALLA WALLA DISTRICT
201 NORTH 3RD AVENUE
SEATTLE, WASHINGTON

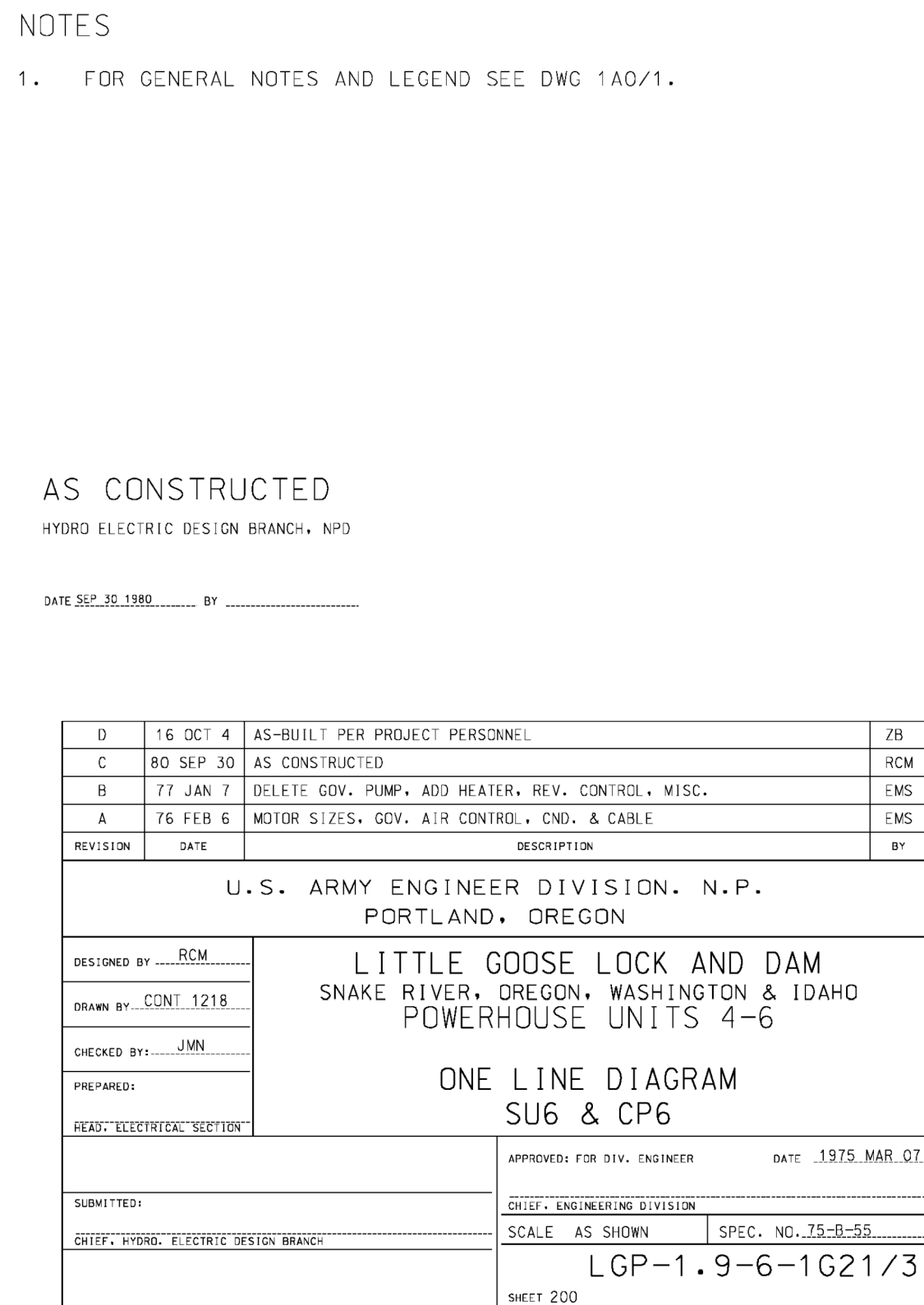
LITTLE GOOSE LOCK AND DAM
POWERHOUSE
DC SYSTEM AND LOW VOLTAGE SWITCHGEAR
POWERHOUSE
ONE LINE DIAGRAM
SU4 & CP4

SHEET ID

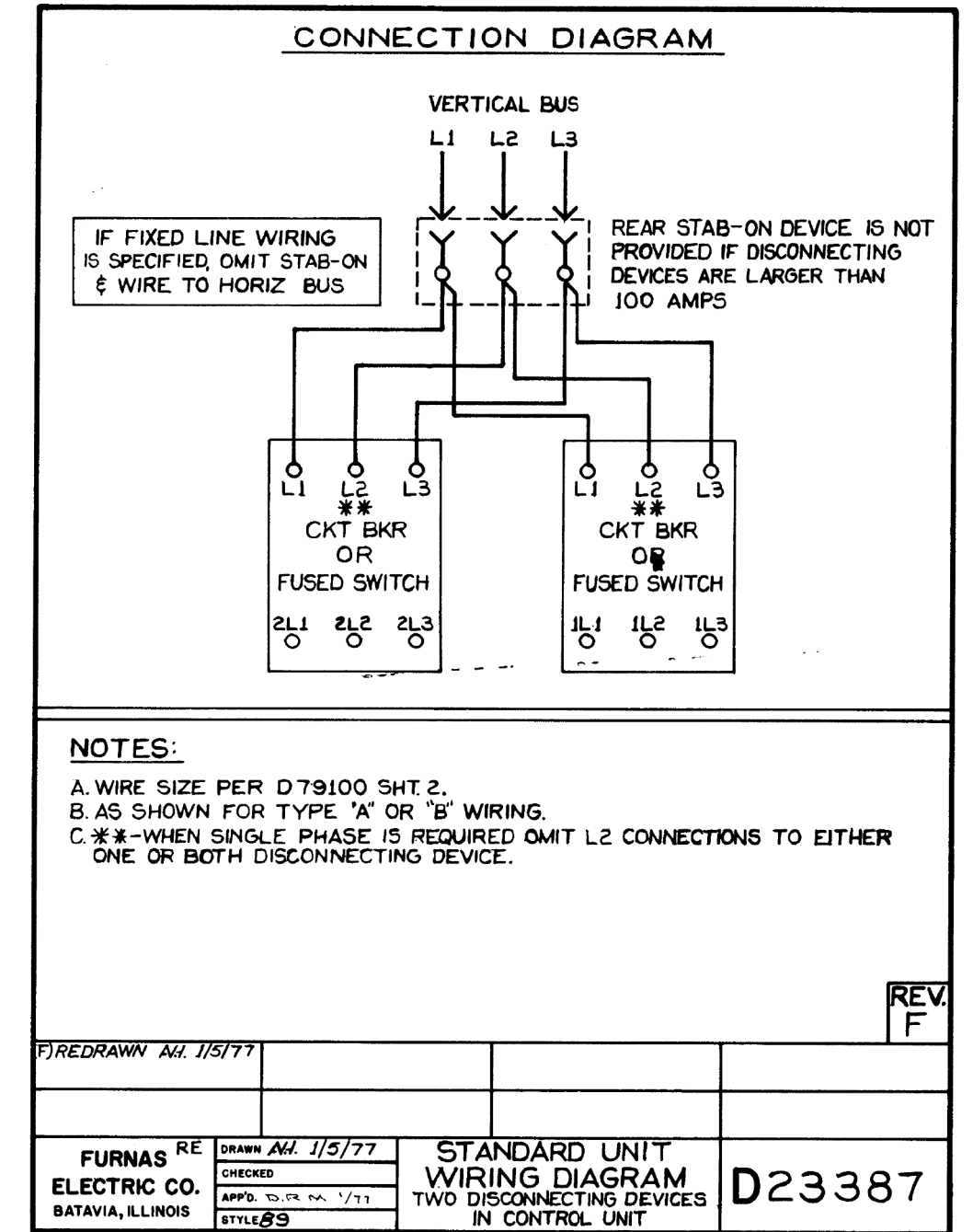
R-088

FINAL





SHEET ID
R-091

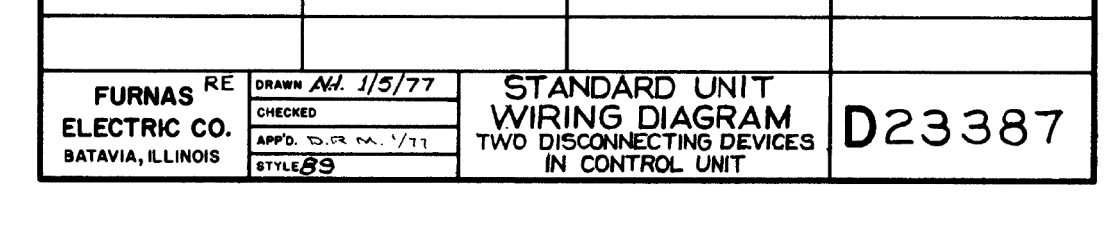
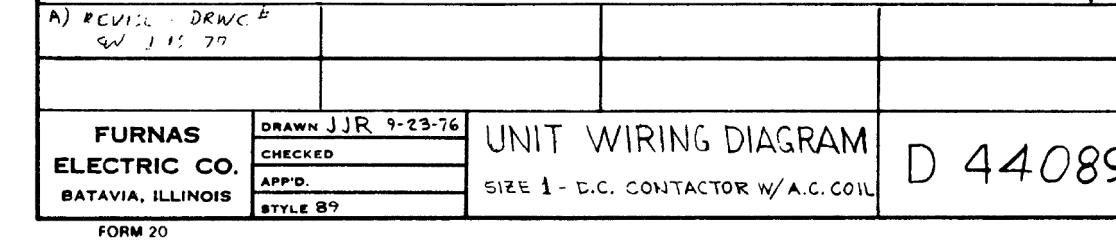
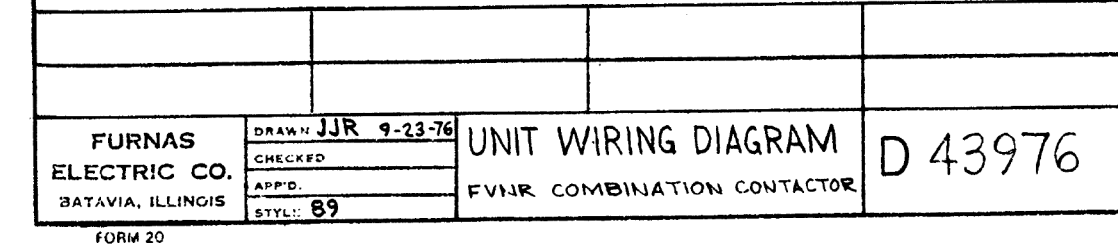
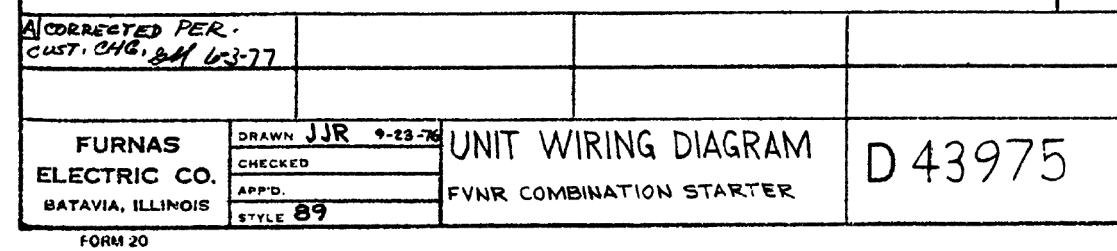


FURNAS ELECTRIC COMPANY, BATAVIA, ILLINOIS																																											
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778	D24473.3																																										

FURNAS ELECTRIC CO. BATAVIA, ILLINOIS	DRAWN JCR-b/10/96 CHECKED APP'D STYLE	HEATER TABLE FOR SIZE 2 COMB. & NON COMB. MELTING ALLOY RELAYS OVERLOAD & STD. TRIP HEATERS	D26072-3
Form 80			

REV.	DATE	DESCRIPTION
		FURNAS ELECTRIC CO. BATAVIA, ILLINOIS
		CUSTOMER <u>QUEEN PUMP CO.</u>
		CONTROL <u>LOWER SNAKE RIVER PROJECT</u> <u>CENTER FOR LITTLE GOOSE SU4</u>
		CUSTOMER ID. <u>DACW68-76-C-0247</u>
		FURNAS ID. <u>B9FY0253 -01 SHI.2</u>
		DRAWN BY <u>GN</u> DATE <u>6/15/76</u>

SHEET ID
R-092



FURNAS ELECTRIC COMPANY, BATAVIA, ILLINOIS																																											
CATALOG NUMBER																																											
MAGNET COIL RATING																																											
VOLTS	HERTZ INSPECTED																																										
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<p>Heaters shown in the table provide a maximum trip rating of 125% of the motor nameplate amperes, which is suitable for 40° C motors. For all other motors select heaters one code number lower than specified in the table, which give a maximum trip rating of approximately 115%.</p> <p>The tripping current of any heater in a 40° C ambient is 25% greater than the lower value of motor amperes shown in table.</p> <p>Letters do not provide protection from short circuits. A protective device should be provided in accordance with the N.E.C. (C.E.C. in Canada) and not exceed the values shown in the table if shown.</p>	<table><thead><tr><th>Full Load Mo. Amperes Min. Max.</th><th>Heater Code No.</th><th>Max. Rat. Device Fu. Bkr.</th></tr></thead><tbody><tr><td>12.4</td><td>H34</td><td>45 30</td></tr><tr><td>13.6</td><td>H35</td><td>45 30</td></tr><tr><td>14.4</td><td>H36</td><td>50 30</td></tr><tr><td>15.6</td><td>H37</td><td>60 30</td></tr><tr><td>17.9</td><td>H38</td><td>60 30</td></tr><tr><td>18.9</td><td>H39</td><td>60 30</td></tr><tr><td>20.0</td><td>H40</td><td>70 30</td></tr><tr><td>22.2</td><td>H41</td><td>80 30</td></tr><tr><td>25.6</td><td>H42</td><td>90 50</td></tr><tr><td>28.8</td><td>H43</td><td>100 50</td></tr><tr><td>33.1</td><td>H44</td><td>125 50</td></tr><tr><td>37.1</td><td>H45</td><td>150 50</td></tr><tr><td>43.2</td><td>H46</td><td>150 100</td></tr></tbody></table> <p>Fu Fuse or inverse time circuit breaker. Bkr Instantaneous trip circuit breaker.</p>	Full Load Mo. Amperes Min. Max.	Heater Code No.	Max. Rat. Device Fu. Bkr.	12.4	H34	45 30	13.6	H35	45 30	14.4	H36	50 30	15.6	H37	60 30	17.9	H38	60 30	18.9	H39	60 30	20.0	H40	70 30	22.2	H41	80 30	25.6	H42	90 50	28.8	H43	100 50	33.1	H44	125 50	37.1	H45	150 50	43.2	H46	150 100
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FURNAS
ELECTRIC CO.
BATAVIA, ILLINOIS

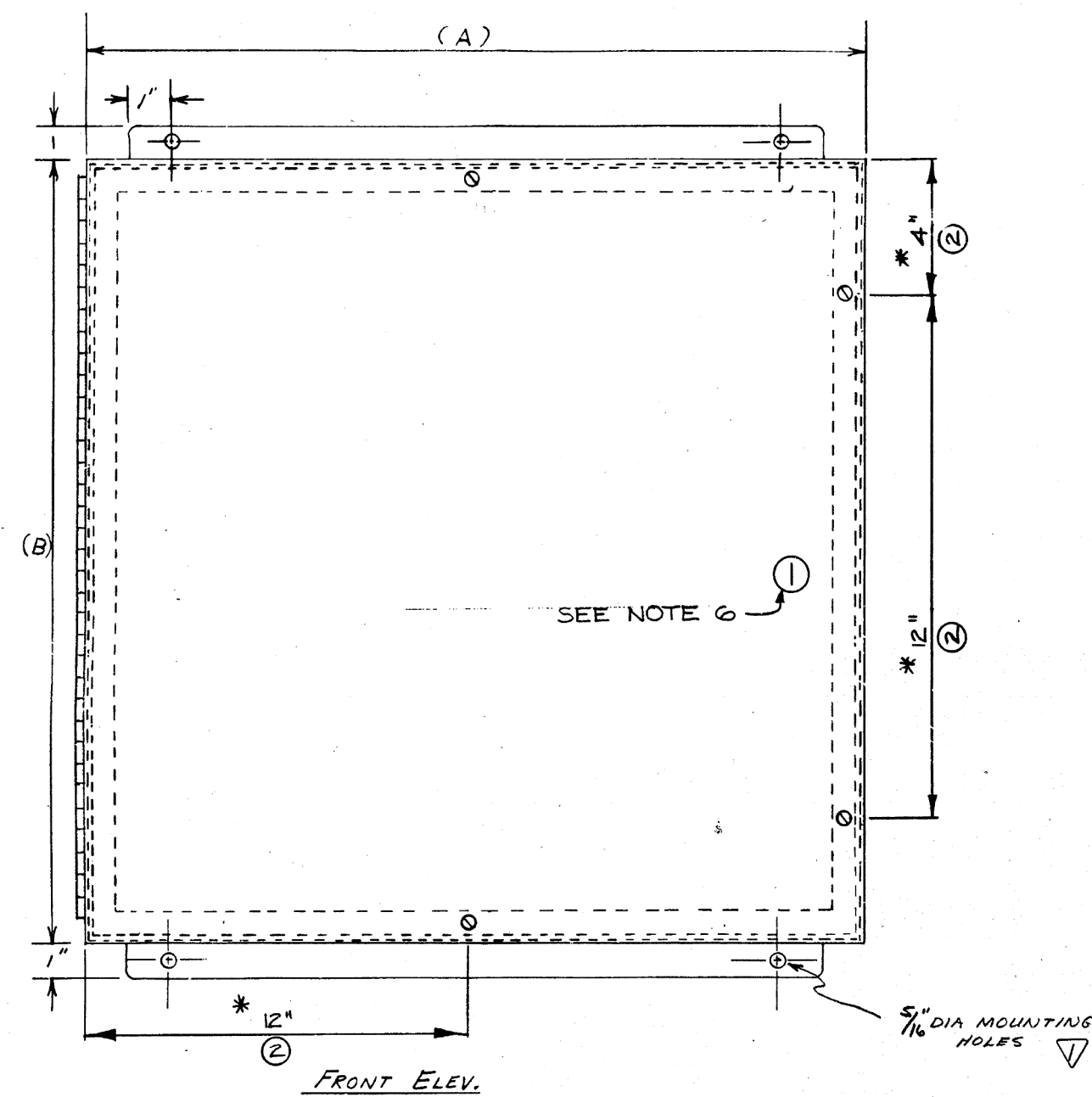
DOWN JCRC 6/16/76
CHECKED
APP'D.

WEATER TABLE FOR
SIZE 5 COMB. HEATER COMB.
OVERLOADS WITH M.E.T. - ALL
COMB. & STD. TRIP HEATERS

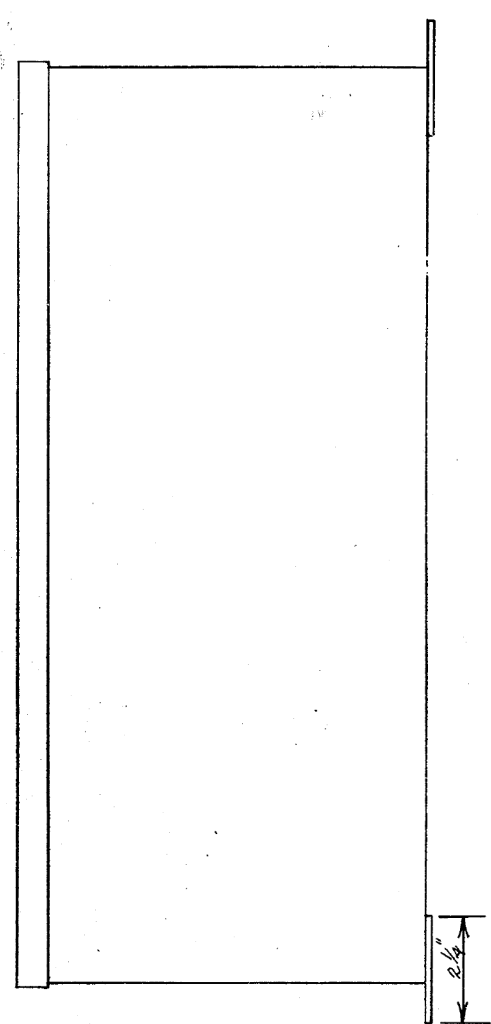
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REV.	DATE	DESCRIPTION
		<p>FURNAS ELECTRIC CO. BATAVIA, ILLINOIS</p> <hr/> <p>CUSTOMER <i>QUEEN PUMP CO.</i></p> <p>CONTROL <i>LOWER SNAKE RIVER PROJ</i> CENTER FOR LITTLE GOOSE <i>SU5</i></p> <p>CUSTOMER ID. <i>DACW68-76-C-0247</i></p> <p>FURNAS ID. <i>89FV0253-02</i> <i>SHT 2</i></p> <hr/> <p>DRAWN BY <i>GH</i> DATE <i>6/5/76</i></p> <p><i>76-C-247-5</i></p>

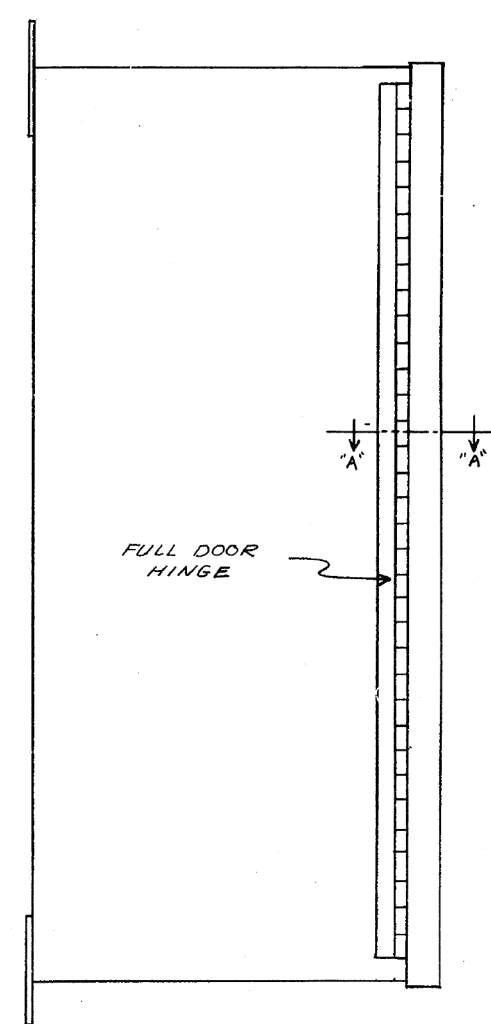




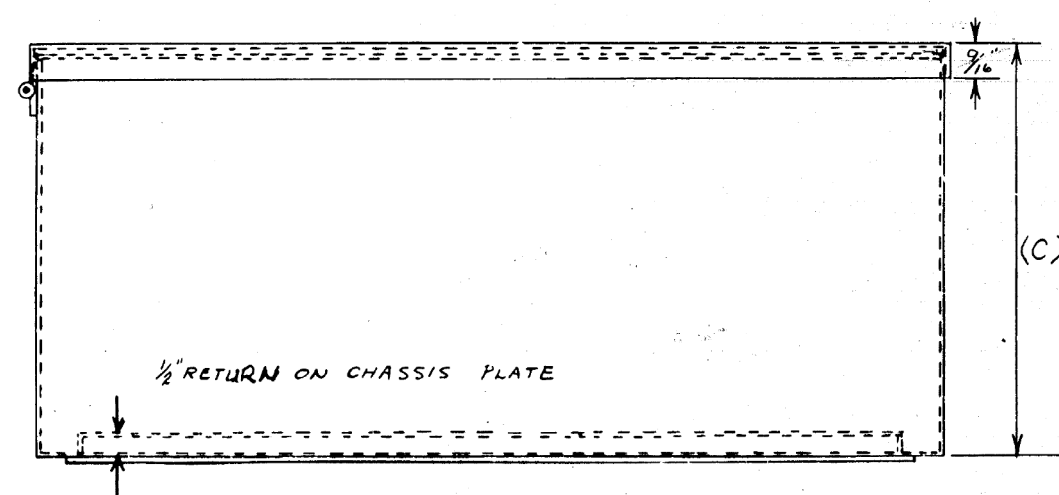
* CAPTIVE FASTENER SPACING FOR 20"X20" PANELS- SEE NOTE 5 (2)



RIGHT SIDE VIEW

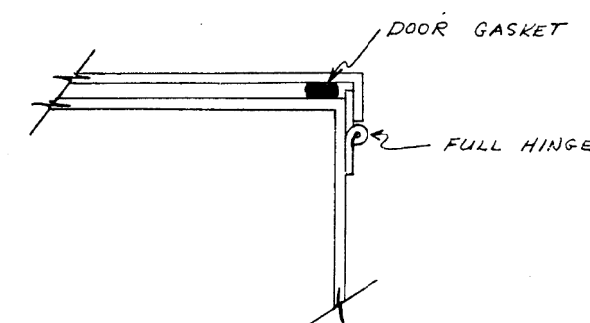


LEFT SIDE VIEW

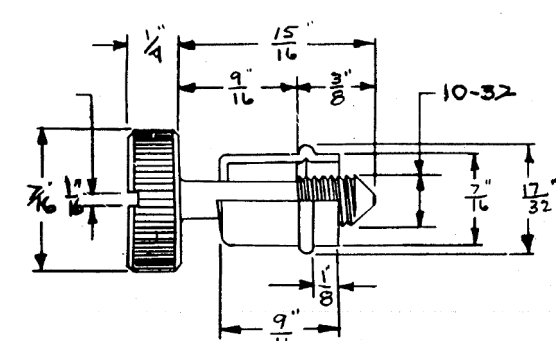


BOTTOM VIEW

NOTE: 1. ALL PANELS BUILT WILL BE OF 12GAUGE GALVANIZED SHEET STEEL (NEMA 12 CONSTRUCTION) 2. HINGES WILL BE STAINLESS STEEL 3. BOX DIMENSION TYPICAL FOR 5/8" BORES, OTHER BORES TYPICAL IN DESIGN ONLY SMALLER IN SIZE 4. DOORS WILL BE GASKETED WITH 1/16" NEOPRENE GASKET MATERIAL 5. SPACING BETWEEN CAPTIVE FASTENERS SHALL NOT BE GREATER THAN 12 INCHES 6. KEED LOCKS WILL BE PROVIDED FOR ALL ENCLOSURES HAVING 480VOLT A.C. OR 125 VOLT D.C. PER SPEC. 16A. O.S.B. (2)



SECTION "A A"



CAPTIVE SCREW TYP DETAIL

PANEL	SIZE		
	A	B	C
10. AC TURBINE BEARING OIL PUMP STARTER	20" X 20" X 8"		
11. DC TURBINE BEARING OIL PUMP STARTER	20" X 20" X 8"		
12. STOP NUT MOTOR STARTER	20" X 20" X 8"		
13. HEAD COVER SUMP PUMP NO.1 STARTER	20" X 20" X 8"		
14. HEAD COVER SUMP PUMP NO.2 STARTER	20" X 20" X 8"		
15. OIL CATCHER PUMP	10" X 10" X 6"		

CONTRACT NO. DACW68-68-C-0080		REVISIONS	
<div>APPROVED</div> <div>Subject to contract and other conditions, corrections or errors, and to fulfillment of any required tests, etc. and does not cover design, dimensions, or availability for assembling an existing.</div> <div>OFFICE OF RESIDENT ENGINEER LITTLE GOOSE LOCK AND DAM</div> <div><i>Collier</i></div> <div>1971 FEB 01</div>		1. 18-4-68 REVISED PER CORPS OF ENGRS. TGH	
		2. 11-1-68 ADDED PANELS & NOTES ARW	
		3. 13-1-68 ELIMINATE PANELS 16, 17 & 18 JAD	
BID ITEM NO. #5			
WATERWORKS EQUIPMENT CO. SALT LAKE CITY, UTAH			
LITTLE GOOSE LOCK AND DAM CONTROL CABINETS			
GALVANIZED PANEL CONSTRUCTION DRAWING			
Date 9-25-68	Drawn by KW	Checked by DT	Approved EFP-C2C
Scale None			

AS BUILT 7/20/71

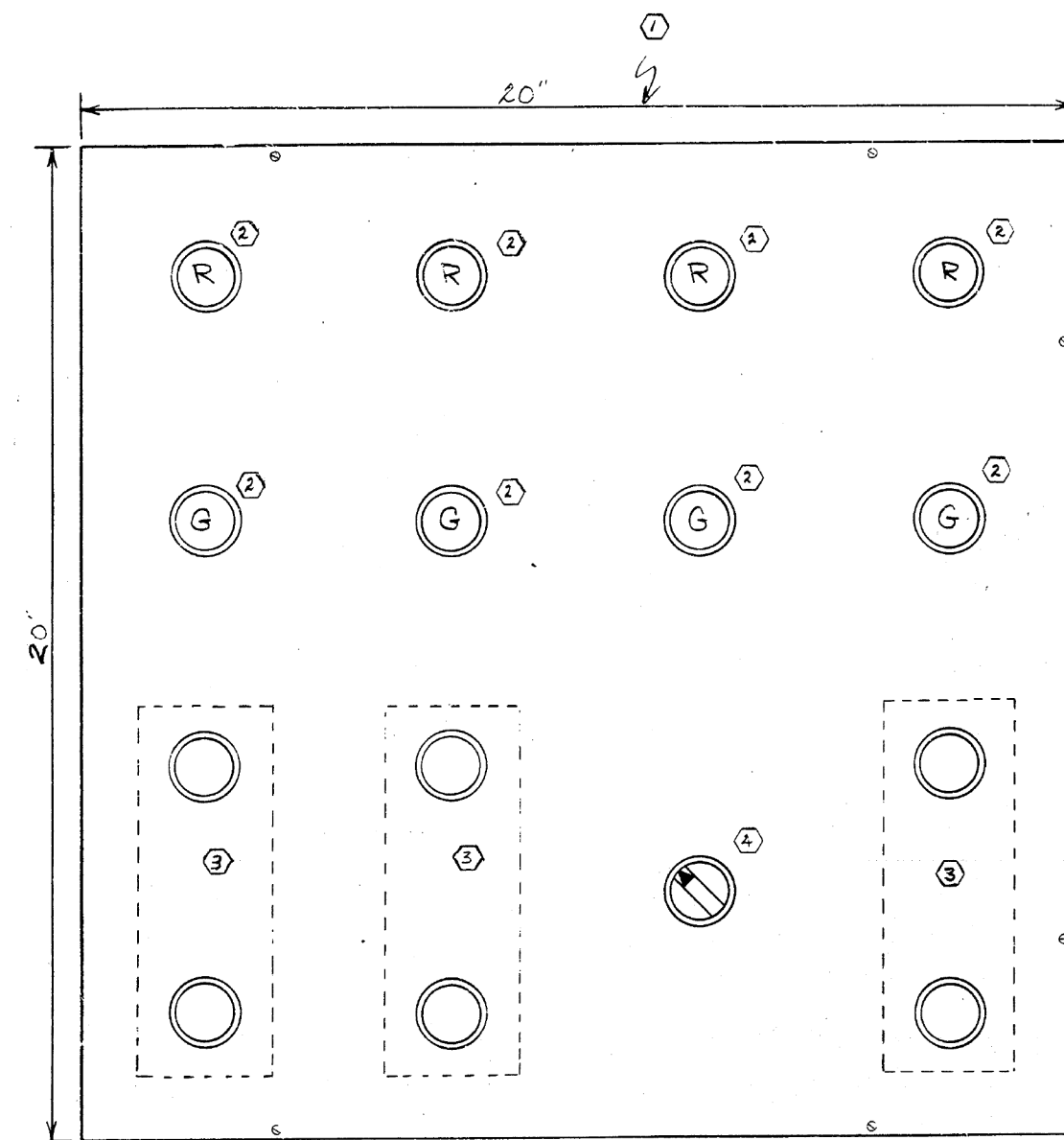
US Army Corps of Engineers®

ISSUE DATE: AUGUST 1972	DESIGNED BY:	U.S. ARMY CORPS OF ENGINEERS WALLA WALLA DISTRICT 201 NORTH 3RD AVENUE WALLA WALLA, WASHINGTON
SOLICITATION NO.: W91ZCZ0001	DRAWN BY:	
CONTRACT NO.:	CHECKED BY:	
DRAWING NUMBER:	SUBMITTED BY:	
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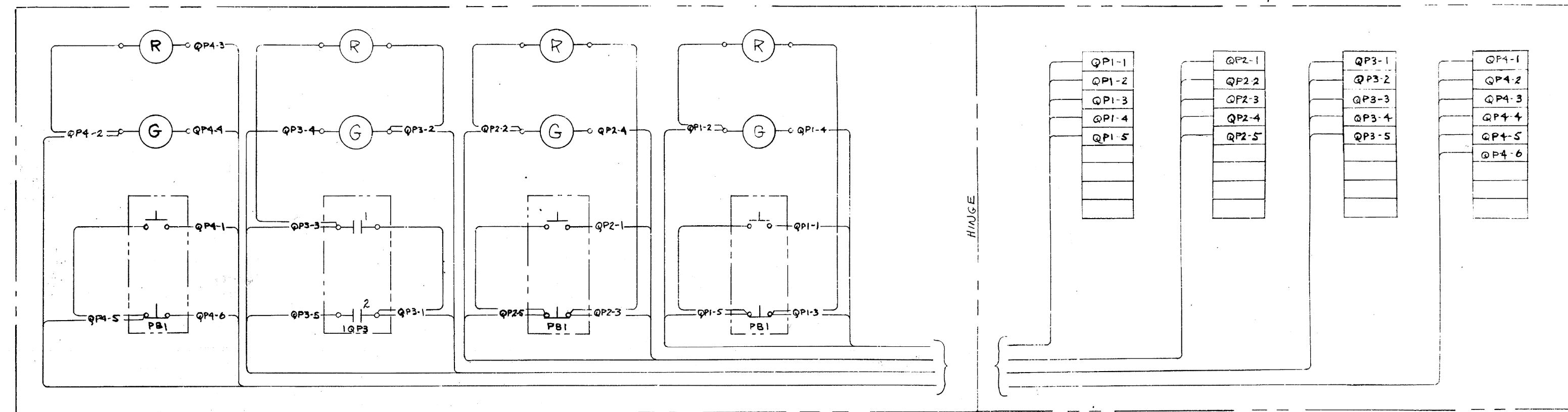
LITTLE GOOSE LOCK AND DAM
POWERHOUSE
DC SYSTEM AND LOW VOLTAGE SWITCHGEAR
CONTROL CABINETS
GALVANIZED PANEL CONSTRUCTION

SHEET ID
R-094

FINAL



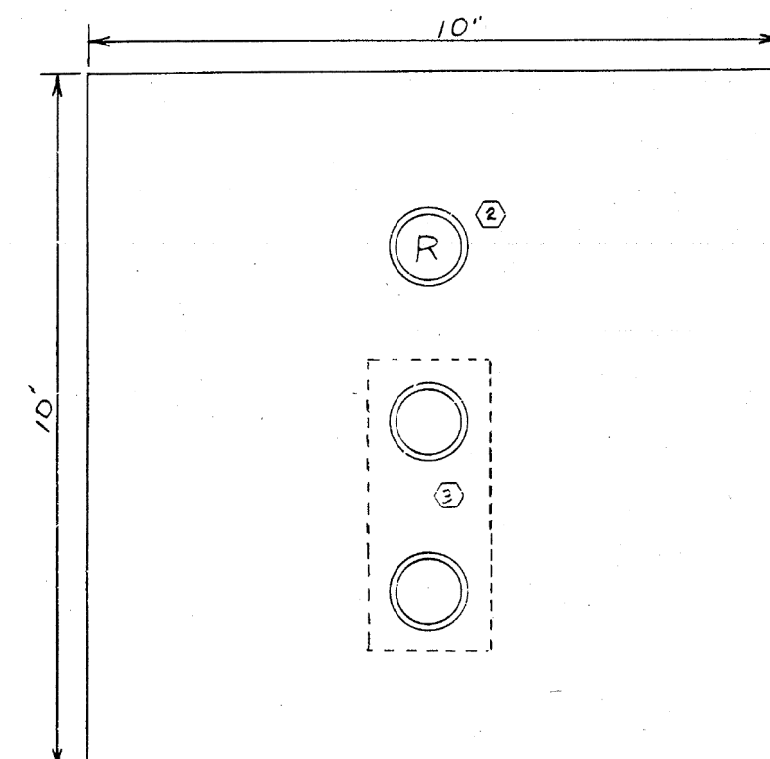
FRONT ELEV.



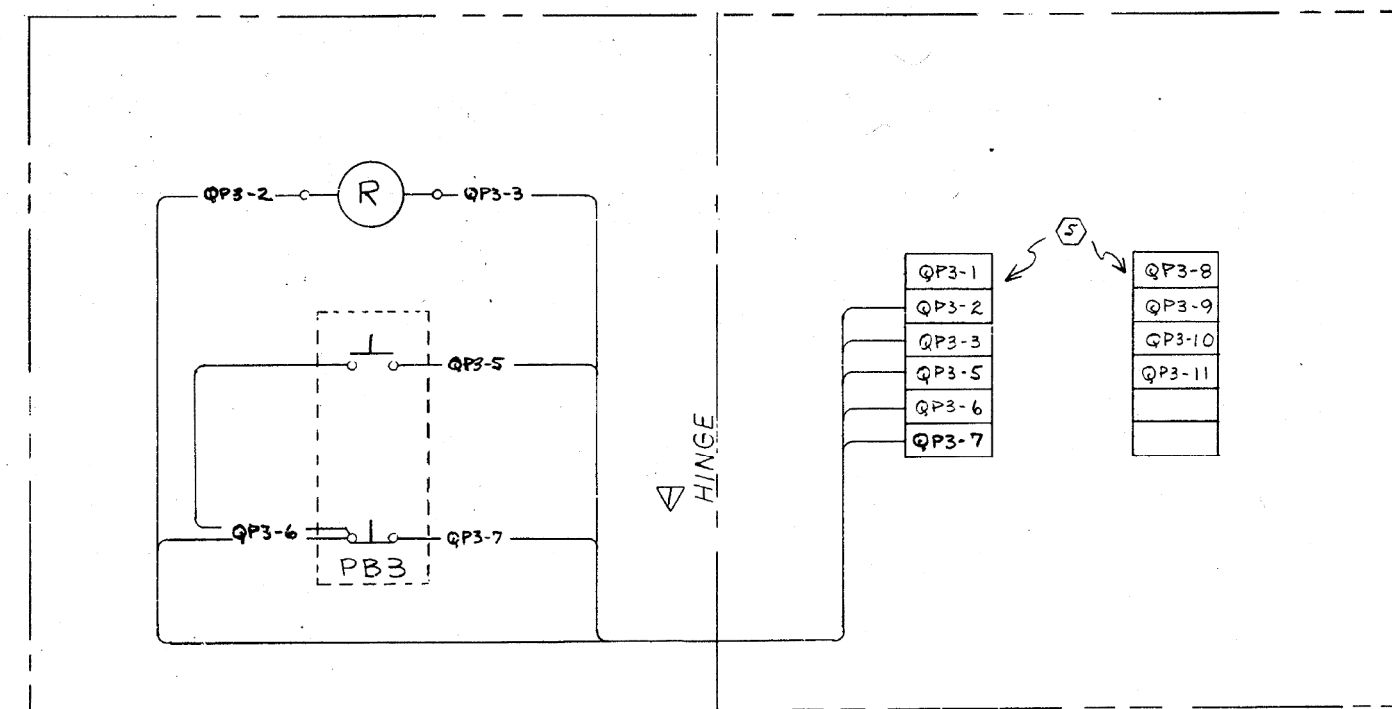
ELECTRICAL WIRING DIAGRAM
(BACK VIEW OF DOOR)

CHASSIS PLATE LAYOUT & WIRING DIAGRAM

~~OIL Transfer Pump Control~~
OIL Transfer Pump Control



FRONT ELEV.



WIRING DIAGRAM
(BACK VIEW OF DOOR)

CHASSIS PLATE LAYOUT

NO.	ITEM	MANUFACTURER AND DIScription
1.	ENCLOSURE	OF GALV. SHEET STEEL (SEE DRAWINGS)
2.	IND. LIGHTS	* OFF INDICATING LIGHTS W/ LENS
3.	PUSHBUTTON	* OT2BI PUSHBUTTON STATIONS
4.	REL. SW	* OT2B 3 POS. SWITCH
5.	TERMINALS	603 TERMINAL BLOCKS
▽	WIRE	177 WIRE & CABLE CO. TYPE SIS (SEE NOTE 3)
▽	LUGS	RING-TONGUE TYPE STA-KON LUGS.

NOTES: 1. NAME PLATES AS PER NAME PLATE
SCHEDULE ON DRAWING
LGP-1-1-6-1A8/7 SHEET 73
AS SPECIFIED.

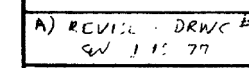
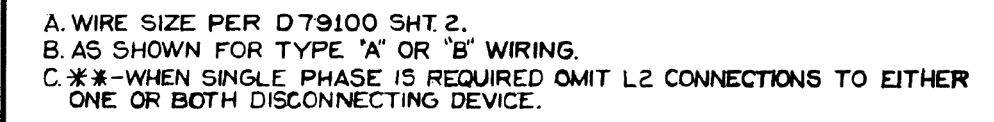
2. SELECTOR SWITCH ESCLUTCHEON PLATES AS
PER DWG. LGS-1-1-6-1D2.9/11 SR 16

3. CAT. NO. W-624 NO. 19 AWG 75 STRAND PER CONT.
FOR HINGE WIRE - MEETING THE REQUIREMENT

AS BUILT 7/20/71

CONTRACT NO. DACW68-68-C-0080 OFFICIAL USE ONLY APPROVED Subject to conformity with plans and specifications, correction of errors or omissions, and to fulfillment of any required tests. Approval does not cover dimensions, or acceptability for operating and fastening. OFFICE OF RESIDENT ENGINEER LITTLE GOOSE LOCK AND DAM <i>J. C. Carr</i> Date: 1 FEB 1971	REVISIONS 1 <i>REVISED PER CORPS OF ENGRS</i> TGH
	BID ITEM NO. 26 WATERWORKS EQUIPMENT CO. SALT LAKE CITY, UTAH LITTLE GOOSE LOCK AND DAM CONTROL CABINETS OIL TRANSFER PUMP & LUBE OIL PUMP Date: 9-18-68 Drawn by: Checked by: Approved: 8FC020-3

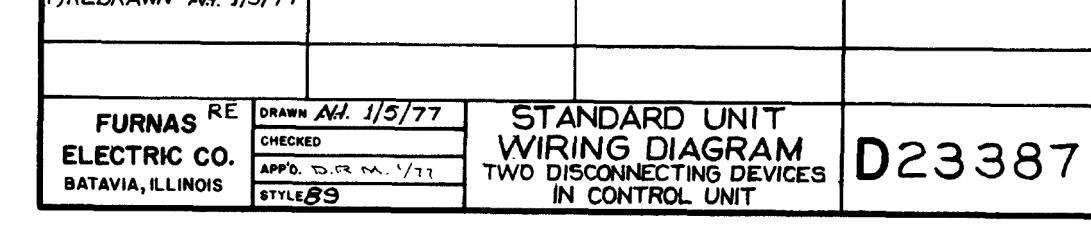
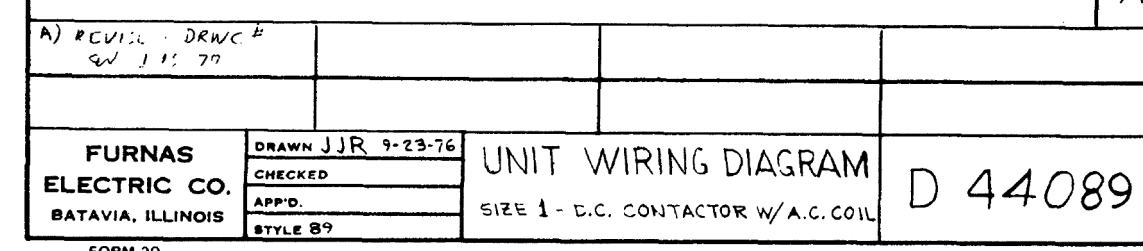
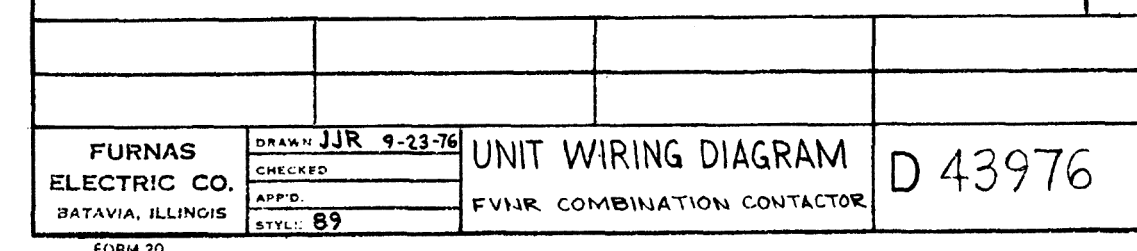
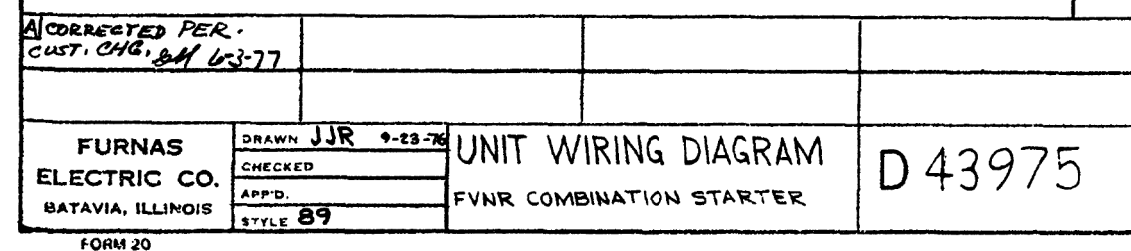
SHEET ID
R-097

FORM 20FORM 20FORM 20

F) REDRAWN A.H. 1/5/77

Form 20

76-C-247-2



U.S. ARMY CORPS OF ENGINEERS WALLA WALLA DISTRICT 201 NORTH 3RD AVENUE SEATTLE, WASHINGTON	DESIGNED BY:	ISSUE DATE: AUGUST 2022
	DRAWN BY:	SOLICITATION NO.: W912EZF2R0001
	CHECKED BY:	CONTRACT NO.:
	SUBMITTED BY:	DRAWING NUMBER:
SIZE:		FILENAME: P-0001.dwg

SHEET ID
R-098

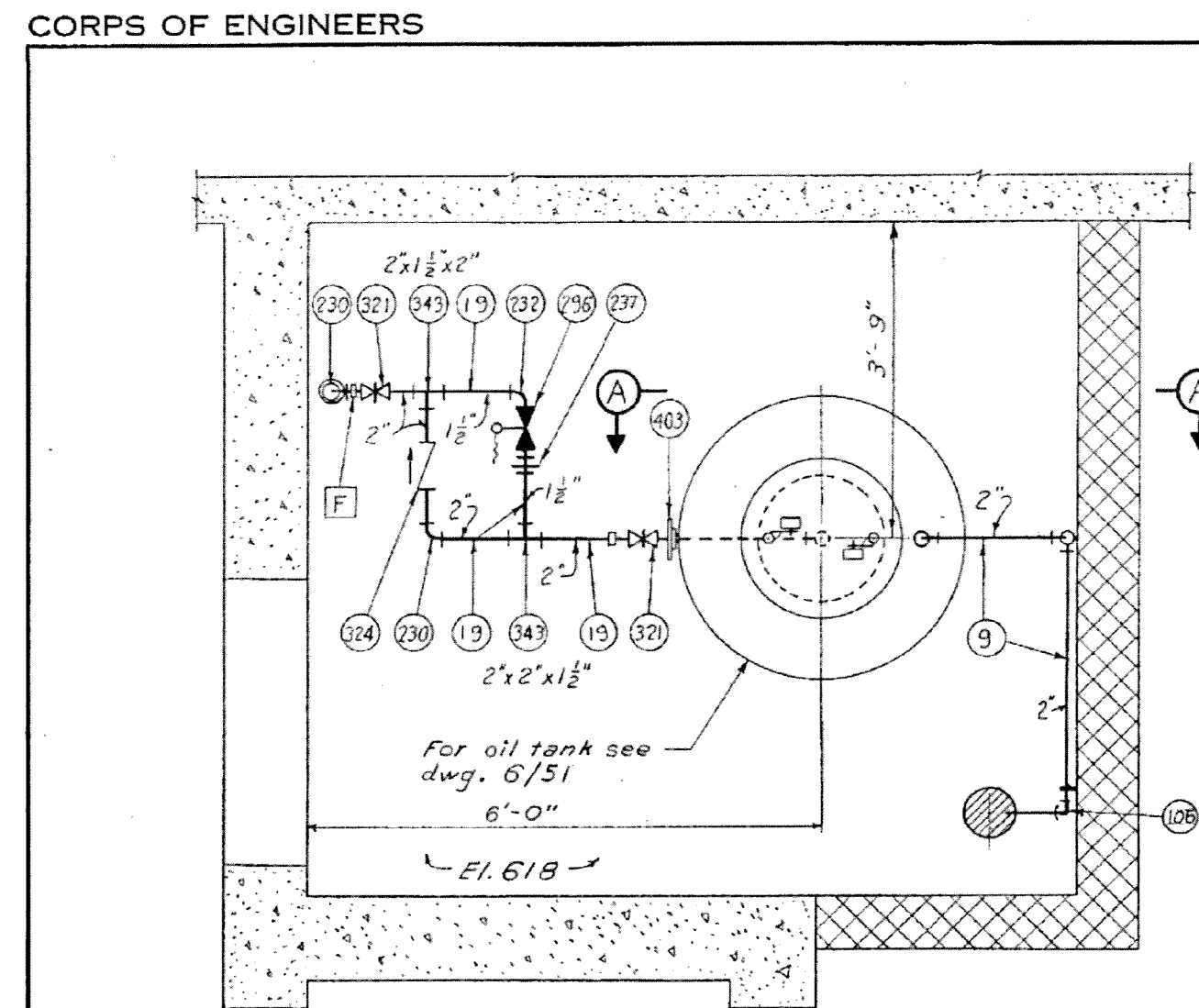
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FURNAS ELECTRIC COMPANY, BATAVIA, ILLINOIS		DRAWN JHC-2 5/14/96 CHECKED APP'D. STYLE		HEATER TABLE FOR SIZE 2 COVER, 1/2 INCH CON- TAINING ANTI-HEAT-ALLOY OVERLOADS & STD. TRIP HEATERS	
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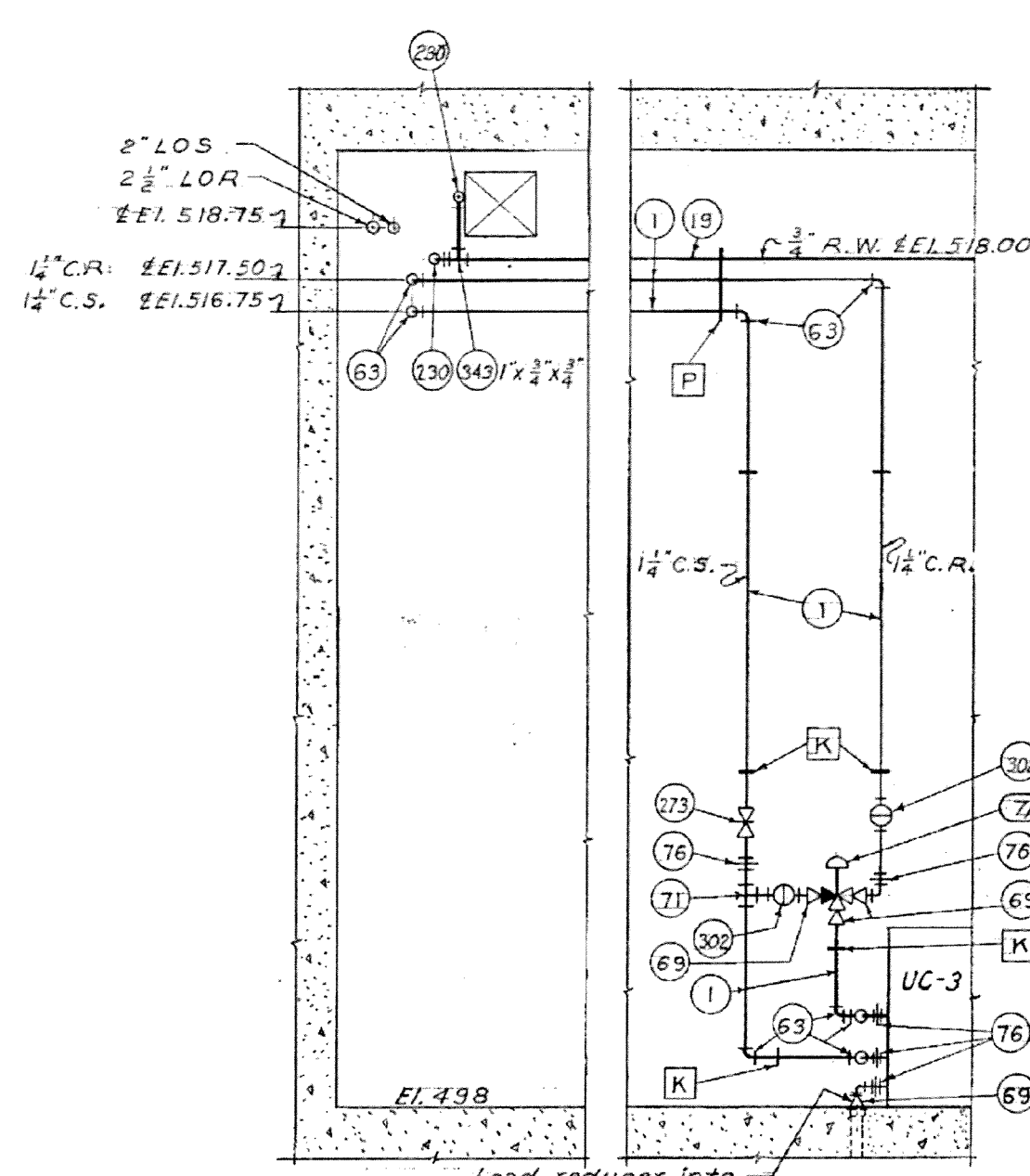
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Form 90

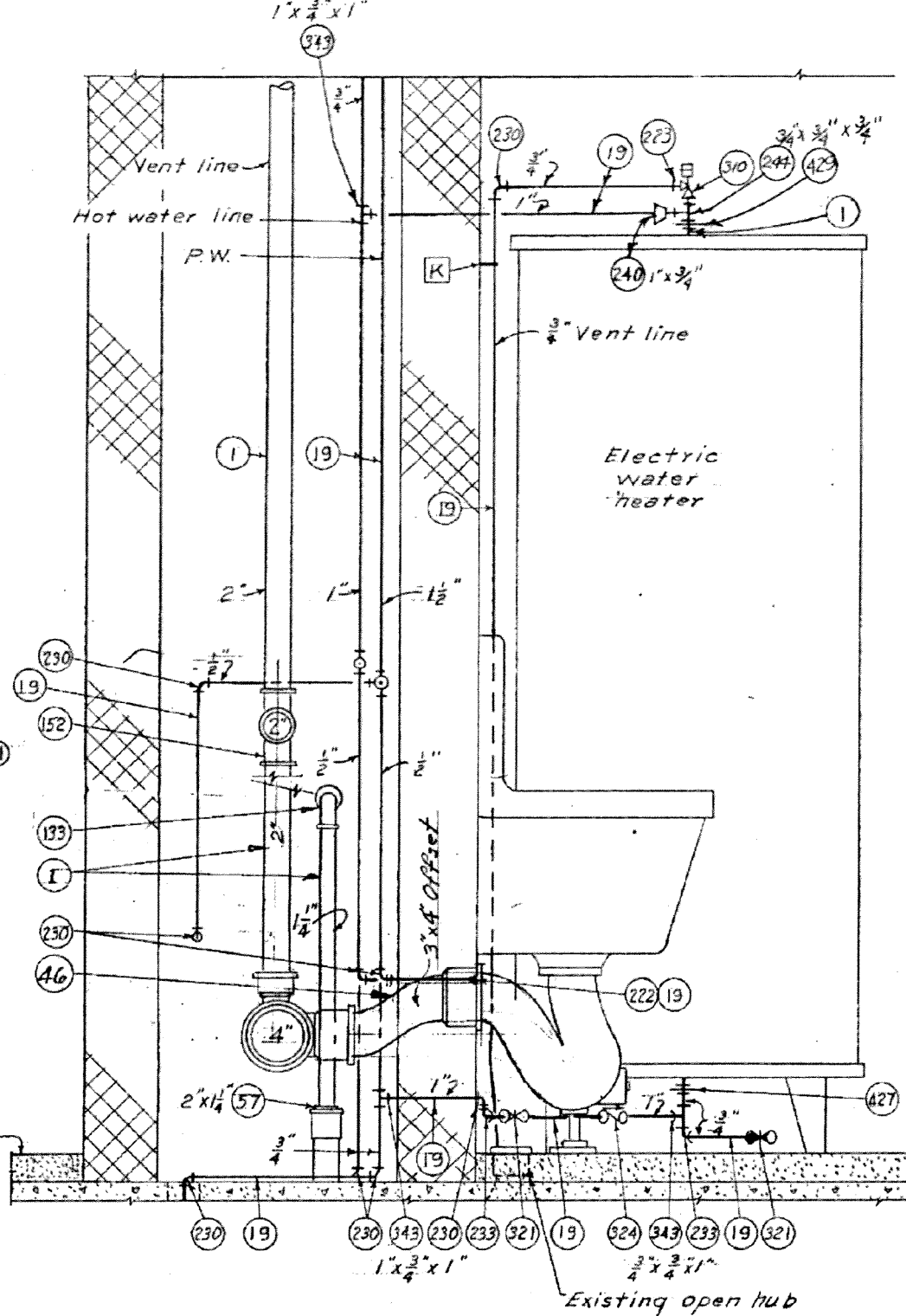
AS BUILT		
REV.	DATE	DESCRIPTION
		<p>FURNAS ELECTRIC CO. BATAVIA, ILLINOIS</p> <p>CUSTOMER <u>QUEEN PUMP CO.</u> CONTROL <u>LOWER SAWAKE RIVER PROJECT</u> CENTER FOR LITTLE GOOSE SU5</p> <p>CUSTOMER ID <u>DRAWING 68-16-C-0247</u></p> <p>FURNAS ID <u>89FV0253-02 SHT. 2</u></p> <p>DRAWN BY <u>GH</u> DATE <u>6/15/76</u></p>



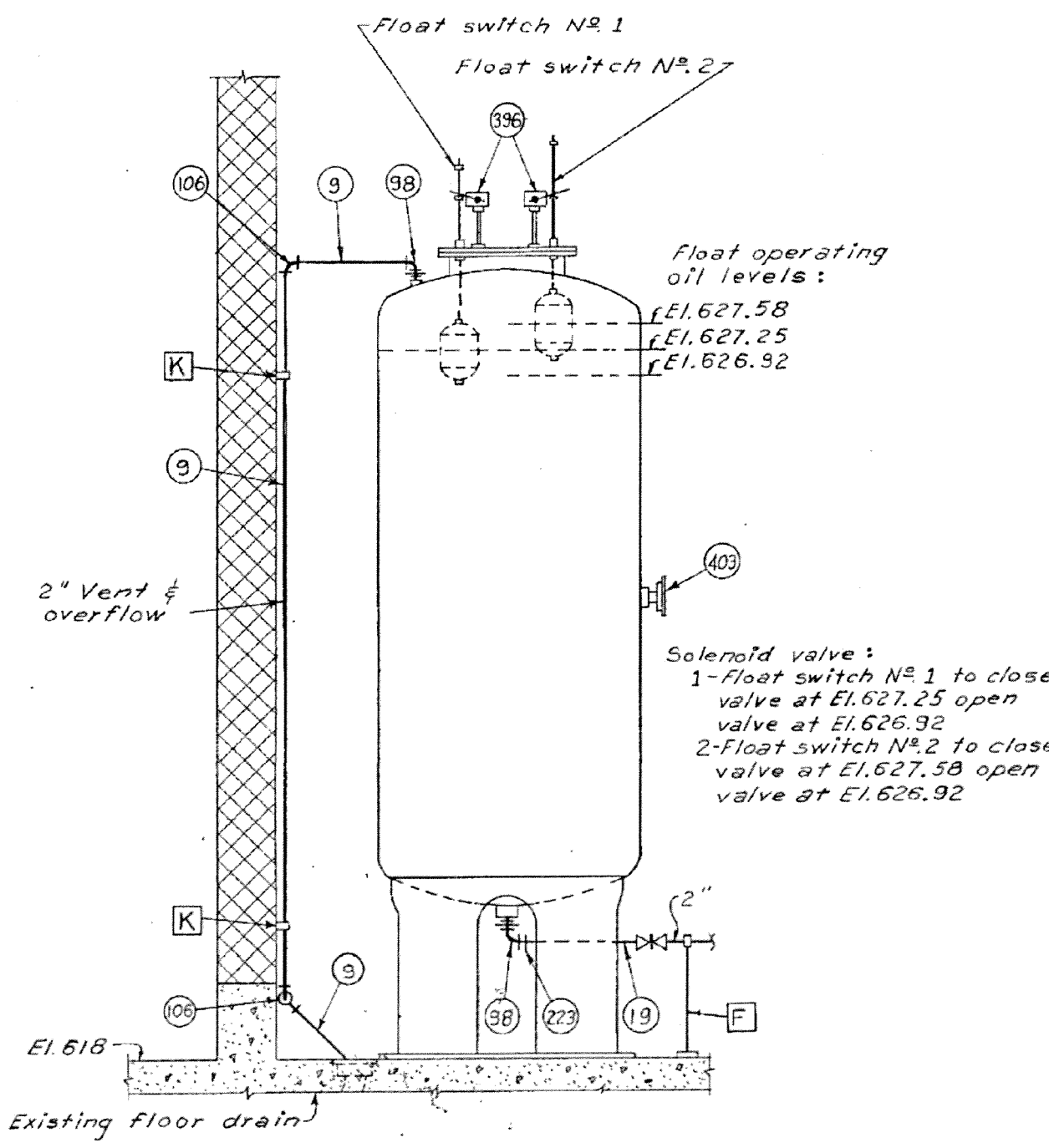
PLAN "A" (9/72)
SCALE: $\frac{3}{4}" = 1' - 0"$



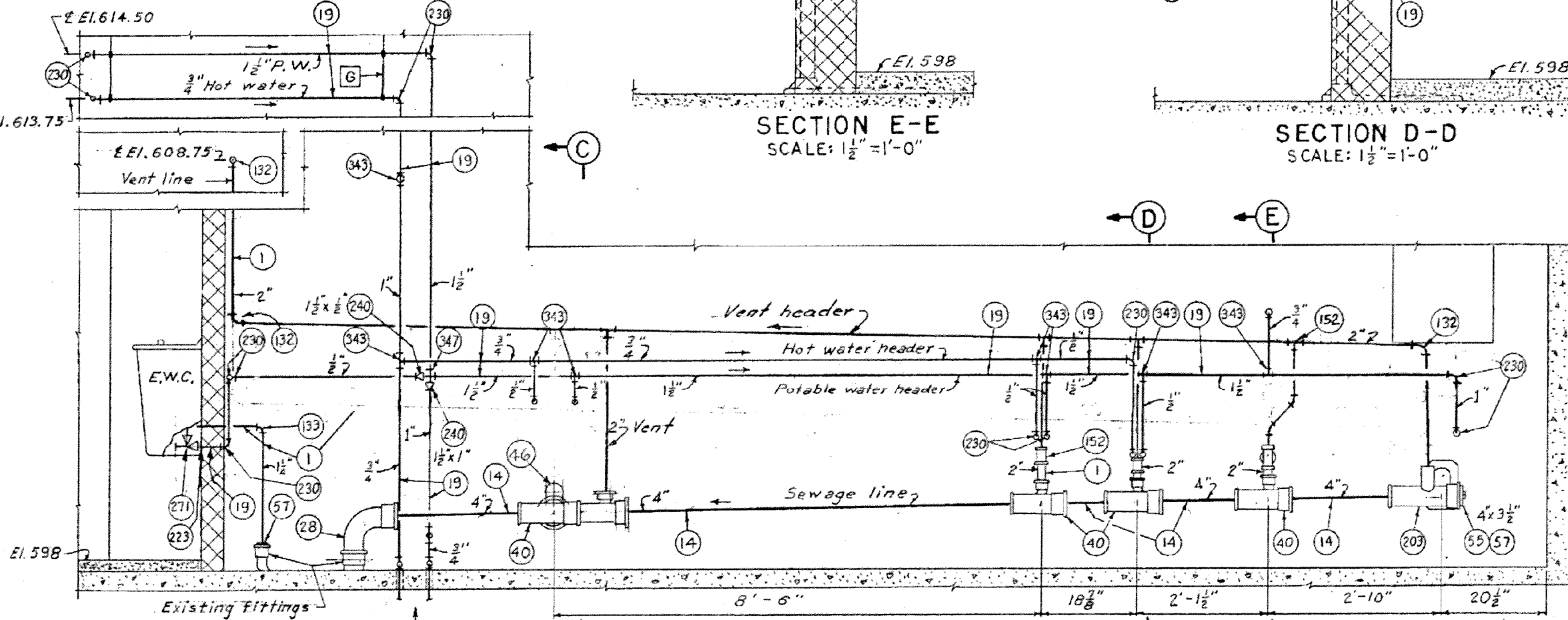
SECTION G-G (9/88)
SCALE: $\frac{3}{8}" = 1'-0"$



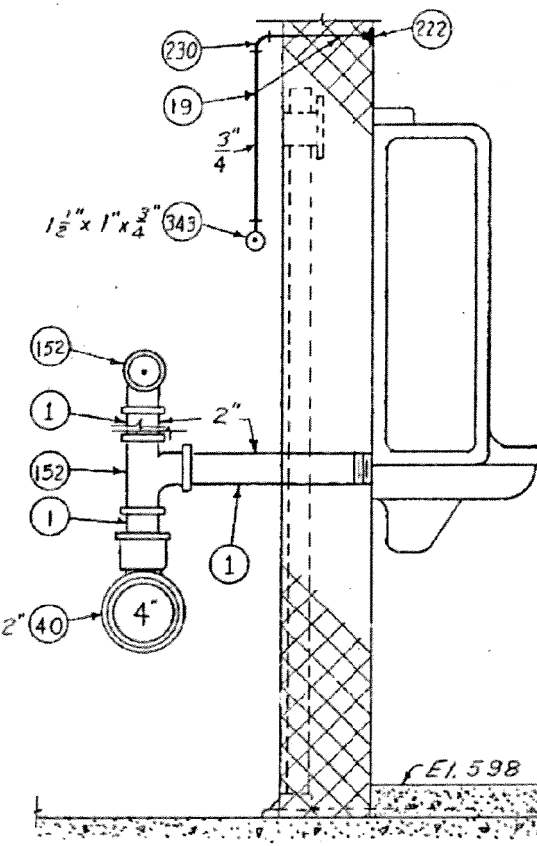
SECTION C-C
SCALE: $1\frac{1}{2}'' = 1'-0''$



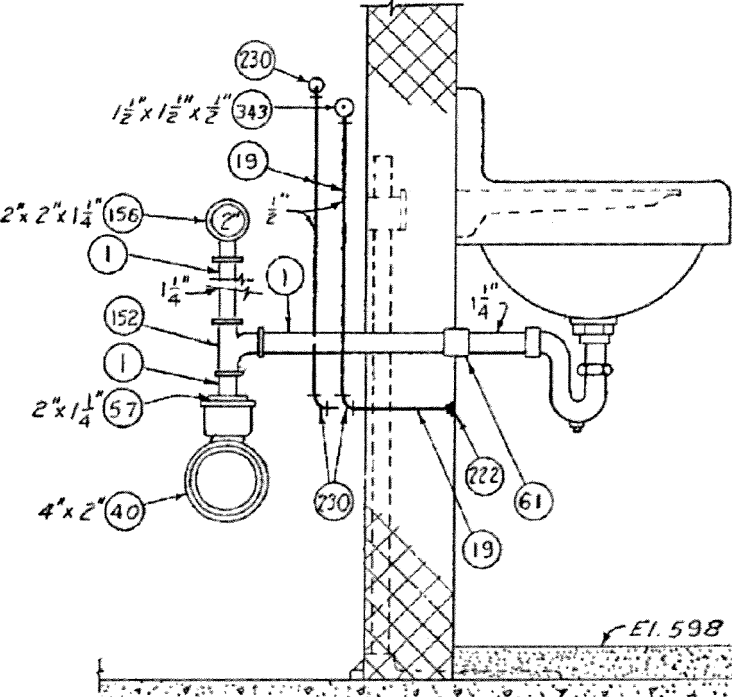
SECTION A-A
SCALE: $\frac{3}{4}"=1'-0"$



SECTION H-H (9/74)
SCALE: $\frac{3}{4}" = 1'-0"$



SECTION E-E
SCALE: $1\frac{1}{2}" = 1'-0"$



SECTION D-D
SCALE: $1\frac{1}{2}"=1'-0"$

LIST OF MATERIAL				
PART NO.	MATL.	QTY.	DESCRIPTION	R.T.D. ITEM
19	SAH SH		Pipe, 2 1/2" smaller	schedule 40 15
9	SAH SH		Pipe, 2 1/2" smaller	schedule 40 12
14	C. I.		Soil pipe, nub & spigot	ex. hvy. 11
16	Brass		Pipe, I.P.S. threaded	standard 17
19	Copper		tubing type K (hard)	17
29	C. I.		Bend, 3"	ex. hvy. 11
40	"		Y-branch (single) sanitary	ex. hvy. 11
55	Brass		Plug, screwed I.P.S.	11
57	C. I.		Iron body ferrule (tapped)	ex. hvy. 11
61	WIGOLU		Coupling straight, 2 1/2" smaller, thd., 150 psi	15
63	"		Elbow, 90° 2 1/2" smaller, thd., 150 psi	"
64	"		Elbow, 30° street, 2 1/2" smaller, thd., 150 psi	"
69	"		Reducer 2 1/2" smaller, thd., 150 psi	"
71	"		Tee, straight 2 1/2" smaller, thd., 150 psi	"
76	"		Union, G. J. Temple, 2 1/2" smaller, thd., 150 psi	"
90	"		Union, 30° elbow - M & F, 2 1/2" smaller, thd., 300 psi	"
106	C. I.		Elbow, 30° thd., 2 1/2" smaller 125 psi	"
132	"		Elbow, 30° short turn drainage pitched	"
142	"		Elbow 45° turn drainage pitched	"
142	"		Elbow 45° long drainage	"
143	"		Elbow, 45° street drainage	"
152	"		Y-branch, 90° single, short turn, drainage, pitched	"
156	"		Y-branch, 90°, reducing, single, short turn, drainage pitched	"
203	C. I.		Closet fitting, wall, horizontal, adjustable, single, w/corrier.	11
222	Bronze		Coupling, adapter, C to NPT	std. ft. 17
223	"		Coupling, adapter, C to NPT	std. ft. "
230	"		Elbow, 90° C to C	std. ft. "
231	"		Elbow, 90° C to NPT	std. ft. "
233	"		Elbow, 90° street, C to fitt.	std. ft. "
237	"		Union, C to NPT	std. ft. "
240	"		Reducer, fitt. to C	std. ft. "
243	"		Tee, C to NPT to C	std. ft. "
271	"		Valve, angle 2 1/2" smaller thd., 125 psi	18
273	"		Valve, gate, R.S. (wedge disc) thd., 125 psi 2 1/2" smaller	18
296	Bronze		Valve, solenoid, 2-way water 125 psi	42
302	IBBP		Coch, plug 2-way thd. 2" smaller 180 psi	18
310	Bronze		Valve, relief, press. & temp. 125 psi	42
321	"		Valve, gate, R.S. single disc, 125 psi std. ft.	18
324	"		Valve, swing check, brass seat & disc C to C std. ft.	17
343	Bronze		Tee, reducing C to C	std. ft. 17
347	"		Cross, C to C to C	std. ft. 17
395	"		Float switch, Allen Bradley, Bull. 840, 41 style B, switch with 840-IBCE excess ories, Nema 1 enclosure with gaskets, or eq.	36
403	-		Gauge, liquid level	17
429	-		Insulating union, EPCC model 22" or eq.	17
244	Bronze		Tee, NPT to NPT to C	std. ft. 17
46	C. I.		Offset	ex. hvy 11

NOTES:
7- For general notes see drawing 9/58.

AS CONSTRUCTED
HYDRO ELECTRIC DESIGN BRANCH, NPD

DATE 1977 SEP 17 BY W. H. McPennis

A	110507 IT is constructed. Minor revisions.		WATER
REVISION	DATE	DESCRIPTION	BY
<p align="center">U. S. ARMY ENGINEER DIVISION. N. P. PORLAND, OREGON</p>			
<p align="center">LITTLE GOOSE LOCK AND DAM SLAKE RIVER, OREGON, WASHINGTON & IDAHO POWERHOUSE ERECTION BAY EXPOSED PIPING SECTIONS AND DETAILS</p>			
DESIGNED BY <i>ITT</i>			
DRAWN BY <i>ILM</i>			
CHECKED BY <i>QCB</i>			
<i>QCB</i> PREPARED BY W. B. HANCOCK (COMB)			
SUBMITTED: <i>L. Little</i> CHIEF, HYDRO-ELECTRIC DESIGN BRANCH	APPROVED FOR DRY ENGINEER <i>L. Little</i> DATE <i>25 Jan 68</i>		
INV. NO. <i>DAGW66-60-3006</i>	SCALE AS SHOWN SPEC. NO. <i>LGP-11.3-9/71</i>		
SHEET <i>147</i>		VOL. NO. <i>1</i>	

FOR INFORMATION ONLY

Sheet number:

-046

LITTLE GOOSE LOCK AND DAM
SNAKE RIVER, OREGON, WASHINGTON AND IDAHO
POWERHOUSE HVAC CONTROLS UPGRADE
POWERHOUSE
ERECTION BAY - EXPOSED PIPING
SECTIONS AND DETAILS

POWERHOUSE
C SYSTEM AND LOW VOLTAGE SWITCHGEAR
POWERHOUSE ERECTION BAY
EXPOSED PIPING
SECTIONS AND DETAILS

